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Astounding

SCIENCE FICTION

JUNE

BRITISH
1-
EDITION

THE TELLING MIND
PAUL ANDERSON

"Dianetics"
A new science of the mind

ASTOUNDING SCIENCE FICTION
1951

Astounding SCIENCE FICTION

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June 1951

It is with great regret that the Publishers have been forced to put the price of this magazine up to One Shilling.

Rising costs in all stages of production, coupled with the recent increase in the cost of paper, have now made this inevitable.

The recent cut in the paper allowance may eventually mean short supplies. Be sure to place a firm order with your newsagent.

AMERICAN MAGAZINE SHOP
Contents
42 ROCHDALE ROAD

Novellette

- THE HELPING HAND Poul Anderson 40

Short Stories

- THE POTTERS OF FIRSK Jack Vance 4

- THE APPRENTICE Miles M. Acheson 55

Articles

- CONCERNING DIANETICS The Editor 2

- DIANETICS: The Evolution of a Science L. Ron Hubbard 14

- INTELLECTUAL HOBSON—JOBSONISM . The Editor 62

YOUR NEXT ISSUE WILL BE ON SALE FRIDAY 20th JULY

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CONCERNING DIANETICS

THE long article on *dianetics* by L. Ron Hubbard, in this issue, is, I feel, a highly important publication indeed. The article describes a technique of mental therapy of such power that it will, I know, seem fantastic. If so, it can also be said that the power of the human mind is, indeed, fantastic. I want to assure every reader, most positively and unequivocally, that this article is *not* a hoax, joke, or anything but a direct, clear statement of a totally new scientific thesis.

Dr. Joseph A. Winter, M.D., was asked to write the introductory note; he has studied the techniques in detail, and learned the techniques of himself. I have investigated the material myself. Dr. Winter can speak as a medical expert; I can only say that my investigations have led me to the conviction that the phenomena I have observed definitely merit publication of this material for wider analysis and testing.

It would have been wholly unfair to publish such revolutionary material until such time as Hubbard's textbook on the technique was available. That book—"Dianetics: The Modern Science of Mental Health"—is available now from Hermitage

House. It contains the exact description of the procedures used.

Hubbard, as an engineer, has tackled the problem of the mind from the scientific method. Basically, that method is:

1. Gather all available data that is, or appears to be, relevant.
2. From the data, form any hypothesis.
3. On the basis of the hypothesis, make a prediction.
4. Experiment to check the validity of the prediction.
5. Vary the experiments, and collect more data.
6. When the new theory breaks down, take the now-collected data and formulate a new hypothesis.
7. Go back to step 3.

Most readers of this magazine are fully accustomed to that method; to those who are not, the above described process is *not* circular; it is spiral. Each turn of the spiral sweeps in more and more territory. It is the turning of precisely such a spiral process that led from Dalton's early atomic hypothesis to Bohr's original theory of atomic structure, to present quantum-mechanical analysis of nuclear forces. It has led to aircraft that fly, automobiles

that work, and radio that covers the planet. It is *not* a self-defeating circular process.

It is also the logical process that led to the present theories of dianetics.

Now there is an interesting thing about a scientific theory; the scientist always rather vaguely hopes the theory he is working with is true, but knows that it *does not need to be*. A scientific theory is a useful tool! it need not be true so long as it is useful. Dalton's theory implied atoms were hard little balls! it was incorrect, but it advanced chemistry. Therefore it was a good theory. The present theories of dianetics may or may not be true! that's unimportant, *provided the techniques described actually work*.

In the scientific method, authority is meaningless. That the new theory disagrees with the Great Name, or with previous theory, or with "as everybody knows," is a statement best classified as a meaningless noise, so far as evidential value is concerned. Proving that something is "theoretically impossible" is an excellent way of conclusively proving the theory is wrong. What "everybody knows, of course" has been so consistently wrong over the past one hundred thousand years it is surprising that the Ancient Authority, "everybody," is still quoted. And so far as Great Name arguments go, simply substitute the arbitrary name "Joe Doakes" for the authority's name; if the argument no longer sounds so convincing—it never was.

And that, basically, is why the publication of Hubbard's text was necessary before this article could appear. There is one, and only one scientific argument with, for or against any scientific theory; experimental evidence. I am most anxious to publish articles confirming or disproving Hubbard's material; whether right or wrong, it is important. He *has got* some provable, demonstrable results; these must be explained. The only scientific method of examination is to have many scattered workers repeat Hubbard's experiments, using precisely the methods Hubbard specifies, and record results. Then, following the scientific method, vary the experiments on logically deduced consequences of the theories, and see what results occur.

To save time and trouble: experimental evidence cannot be denied by argument based on what Freud, Jung, Korzybski, or any other authority said. I am most anxious to publish articles in the field of the mind based on direct experiment. The high population of our mental institutions constitutes experimental evidence that something drastic in the way of revision of psychotherapy techniques is in order. The revisions proposed by dianetics may or may not be the needed ones, but experimental evidence, obtained by actually repeating Hubbard's experiments, is the one way to determine.

THE EDITOR.



AMERICAN MAGAZINE SHOP
42 ROCHDALE ROAD



THE POTTERS OF FIRSK

By JACK VANCE

Uranium is an interesting material indeed. And Uranium-235 can be used to settle a cultural dispute permanently—if it is used sensibly. This time it was.

THE yellow bowl on Thomm's desk stood about a foot high, flaring out from a width of eight inches at the base to a foot across the rim. The profile showed a simple curve, clean and sharp, with a full sense of completion; the body was thin without fragility; the whole piece gave an impression of ringing well-arched strength.

The craftsmanship of the body was matched by the beauty of the glaze—a glorious transparent yellow, luminescent like a hot summer afterglow. It was the essence of marigolds, a watery wavering saffron, a yellow as of transparent gold, a yellow glass that seemed to fabricate curtains of light

within itself and fling them off, a yellow brilliant but mild, tart as lemon, sweet as quince jelly, soothing as sunlight.

Keselsky had been furtively eyeing the bowl during his interview with Thomm, personnel chief for the Department of Planetary Affairs. Now, with the interview over, he could not help but bend forward to examine the bowl more closely. He said with obvious sincerity: "This is the most beautiful piece I've ever seen."

Thomm, a man of early middle-age with a brisk gray mustache, a sharp but tolerant eye, leaned back in his chair. "It's a souvenir. Souvenir's as good a name for it as anything

else. I got it many years ago, when I was your age." He glanced at his desk clock. "Lunch-time."

Keselsky looked up, hastily reached for his brief case. "Excuse me, I had no idea—"

Thomm raised his hand. "Not so fast. I'd like you to have lunch with me."

Keselsky muttered embarrassed excuses, but Thomm insisted.

"Sit down, by all means." A menu appeared on the screen. "Now—look that over."

Without further urging Keselsky made a selection, and Thomm spoke into the mesh. The wall opened, a table slid out with their lunch.

Even while eating Keselsky fondled the bowl with his eyes. Over coffee, Thomm handed it across the table. Keselsky hefted it, stroked the surface, looked deep into the glaze.

"Where on earth did you find such a marvelous piece?" He examined the bottom, frowned at the marks scratched in the clay.

"Not on Earth," said Thomm. "On the planet Firsk." He sat back. "There's a story connected with that bowl." He paused inquiringly.

Keselsky hurriedly swore that nothing could please him more than to listen while Thomm spoke of all things under the sun. Thomm smiled faintly. After all, this was Keselsky's first job.

"As I've mentioned, I was about your age," said Thomm. "Perhaps a year or two older, but then I'd been out on the Channel Planet for nineteen months. When my transfer to Firsk came I was naturally very pleased, because Channel, as perhaps you know, is a bleak planet, full of ice and frost-fleas and the dullest aborigines in space—"

Thomm was entranced with Firsk. It was everything the Channel Planet had not been: warm, fragrant, the home of the Mi-Tuun, a graceful people of a rich, quaint and ancient culture. Firsk was by no means a large planet, though its gravity approached that of Earth. The land surface was small—a single equatorial continent in the shape of a dumbbell.

The Planetary Affairs Bureau was located at Penolpan, a few miles in from the South Sea, a city of fable and charm. The tinkle of music was always to be heard somewhere in the distance; the air was mellow with incense and a thousand flower scents. The low houses of reed, parchment and dark

wood were arranged negligently, three-quarters hidden under the foliage of trees and vines. Canals of green water laced the city, arched over by wooden bridges trailing ivy and orange flowers, and here swam boats each decorated in an intricate many-colored pattern.

The inhabitants of Penolpan, the amber-skinned Mi-Tuun, were a mild people devoted to the pleasures of life, sensuous without excess, relaxed and gay, guiding their lives by ritual. They fished in the South Sea, cultivated cereals and fruit, manufactured articles of wood, resin and paper. Metal was scarce on Firsk, and was replaced in many instances by tools and utensils of earthenware, fabricated so cleverly that the lack was never felt.

Thomm found his work at the Penolpan Bureau pleasant in the extreme, marred only by the personality of his superior. This was George Covill, a short ruddy man with prominent blue eyes, heavy wrinkled eyelids, sparse sandy hair. He had a habit, when he was displeased—which was often—of cocking his head sidewise and staring for a brittle five seconds. Then, if the offense was great, he exploded in wrath; if not, he stalked away.

On Penolpan Covill's duties were more of a technical than sociological nature, and even so, in line with the Bureau's policy of leaving well-balanced cultures undisturbed, there was little to occupy him. He imported silica yarn to replace the root fiber from which the Mi-Tuun wove their nets; he built a small cracking plant and converted the fish oil they burned in their lamps into a lighter cleaner fluid. The varnished paper of Penolpan's houses had a tendency to absorb moisture and split after a few months of service. Covill brought in a plastic varnish which protected them indefinitely. Aside from these minor innovations Covill did little. The Bureau's policy was to improve the native standard of living within the framework of its own culture, introducing Earth methods, ideas, philosophy very gradually and only when the natives themselves felt the need.

Before long, however, Thomm came to jar against Penolpan's mellow ivories and Bureau philosophy. Some of his actions seemed dense and arbitrary to the well-indoctrinated Thomm. He built an Earth-style office on Penolpan's main canal, and the concrete and glass made an inexcusable jar against Penolpan's mellow ivories and browns. He kept strict office hours and on a

dozen occasions a delegation of Mi-Tuun, arriving in ceremonial regalia, had to be turned away with stammered excuses by Thomm, when in truth Covill, disliking the crispness of his linen suit, had stripped to the waist and was slumped in a wicker chair with a cigar, a quart of beer, watching girl-shows on his telescreen.

Thomm was assigned to Pest Control, a duty Covill considered beneath his dignity. On one of his rounds Thomm first heard mentioned the Potters of Firs.

Laden with insect spray, with rat-poison cartridges dangling from his belt, he had wandered into the poorest outskirts of Penolpan, where the trees ended and the dry plain stretched out to the Kukmank Mountains. In this relatively drab location he came upon a long open shed, a pottery bazaar. Shelves and tables held ware of every description, from stoneware crocks for pickling fish to tiny vases thin as paper, lucent as milk. Here were plates large and small, bowls of every size and shape, no two alike, ewers, tureens, demijohns, tankards. One rack held earthenware knives, the clay vitrified till it rang like iron, the cutting edge chipped cleanly, sharper than any razor, from a thick dripping of glaze.

Thomm was astounded by the colors. Rare rich ruby, the green of flowing river water, turquoise ten times deeper than the sky. He saw metallic purples, browns shot with blond light, pinks, violets, grays, dappled russets, blues of copper and cobalt, the odd streaks and flows of rutilated glass. Certain glazes bloomed with crystals like snowflakes, others held floating within them tiny spangles of metal.

Thomm was delighted with his find. Here was beauty of form, of material, of craftsmanship. The sound body, sturdy with natural earthy strength given to wood and clay, the melts of colored glass, the quick restless curves of the vases, the capacity of the bowls, the expanse of the plates—they produced a tremendous enthusiasm in Thomm. And yet—there were puzzling aspects to the bazaar. First—he looked up and down the shelves—something was lacking. In the many-colored display he missed—yellow. There were no yellow glazes of any sort. A cream, a straw, an amber—but no full-bodied glowing yellow.

Perhaps the potters avoided the color through superstition, Thomm speculated, or perhaps because of identification with royalty, like the ancient Chinese of Earth,

or perhaps because of association with death or disease—The train of thought led to the second puzzle: Who were the potters? There were no kilns in Penolpan to fire ware such as this.

He approached the clerk, a girl just short of maturity, who had been given an exquisite loveliness. She wore the *pareu* of the Mi-Tuun, a flowered sash about the waist, and reed sandals. Her skin glowed like one of the amber glazes at her back; she was slender, quiet, friendly.

"This is all very beautiful," said Thomm. "For instance, what is the price of this?" He touched a tall flagon glazed a light green, streaked and shot with silver threads.

The price she mentioned, in spite of the beauty of the piece, was higher than what he had expected. Observing his surprise, the girl said, "They are our ancestors, and to sell them as cheaply as wood or glass would be irreverent."

Thomm raised his eyebrows, and decided to ignore what he considered a ceremonial personification.

"Where's the pottery made?" he asked. "In Penolpan?"

The girl hesitated and Thomm felt a sudden shade of restraint. She turned her head, looked out toward the Kukmank Range. "Back in the hills are the kilns; out there our ancestors go, and the pots are brought back. Aside from this I know nothing."

Thomm said carefully, "Do you prefer not to talk of it?"

She shrugged. "Indeed, there's no reason why I should. Except that we Mi-Tuun fear the Potters, and the thought of them oppresses us."

"But why is that?"

She grimaced. "No one knows what lies beyond the first hill. Sometimes we see the glow of furnaces, and then sometimes when there are no dead for the Potters they take the living."

Thomm thought that if so, here was a case for the interference of the Bureau, even to the extent of armed force.

"Who are these Potters?"

"There," she said, and pointed. "There is a Potter."

Following her finger, he saw a man riding out along the plain. He was taller, heavier than the Mi-Tuun. Thomm could not see him distinctly, wrapped as he was in a long gray burnoose, but he appeared to have a pale skin and reddish-brown hair. He noted the

bulging panniers on the pack-beast. "What's he taking with him now?"

"Fish, paper, cloth, oil—goods he traded his pottery for."

Thomm picked up his pest-killing equipment. "I think I'll visit the Potters one of these days."

"No—" said the girl.

"Why not?"

"It's very dangerous. They're fierce, secretive—"

Thomm smiled. "I'll be careful."

Back at the Bureau he found Covill stretched out on a wicker chaise longue, half-asleep. At the sight of Thomm he roused himself, sat up.

"Where the devil have you been? I told you to get the estimates on that power plant ready today."

"I put them on your desk," replied Thomm politely. "If you've been out front at all, you couldn't have missed them."

Covill eyed him belligerently, but for once found himself at a loss for words. He subsided in his chair with a grunt. As a general rule Thomm paid little heed to Covill's sharpness, recognizing it as resentment against the main office. Covill felt his abilities deserved greater scope, a more important post.

Thomm sat down, helped himself to a glass of Covill's beer. "Do you know anything about the potteries back in the mountains?"

Covill grunted: "A tribe of bandits, something of the sort." He hunched forward, reached for the beer.

"I looked into the pottery bazaar today," said Thomm. "A clerk called the pots 'ancestors.' Seemed rather strange."

"The longer you knock around the planets," Covill stated, "the stranger the things you see. Nothing could surprise me any more—except maybe a transfer to the Main Office." He snorted bitterly, gulped at his beer. Refreshed, he went on in a less truculent voice, "I've heard odds and ends about these Potters, nothing definite, and I've never had time to look into 'em. I suppose it's religious ceremonial, rites of death. They take away the dead bodies, bury 'em for a fee or trade goods."

"The clerk said that when they don't get the dead, sometimes they take the living."

"Eh? What's that?" Covill's hard blue eyes stared bright from his red face. Thomm repeated his statement.

Covill scratched his chin, presently

hoisted himself to his feet. "Let's fly out just for the devilment of it, and see what these Potters are up to. Been wanting to go out a long time."

Thomm brought the copter out of the hangar, set down in front of the office, and Covill gingerly climbed in. Covill's sudden energy mystified Thomm, especially since it included a ride in the copter. Covill had an intense dislike of flying, and usually refused to set foot in an aircraft.

The blades sang, grabbed the air, the copter wafted high. Penolpan became a checkerboard of brown roofs and foliage. Thirty miles distant, across a dry sandy plain, rose the Kukmank Range—barren shoulders and thrusts of gray rock. At first sight locating a settlement among the tumble appeared a task of futility.

Covill peering down into the wastes grumbled something to this effect; Thomm, however, pointed toward a column of smoke. "Potters need kilns. Kilns need heat—"

As they approached the smoke, they saw that it issued not from brick stacks but from a fissure at the peak of a conical dome.

"Volcano," said Covill, with an air of vindication. "Let's try out there along that ridge—then if there's nothing we'll go back."

Thomm had been peering intently below. "I think we've found them right here. Look close, you can see buildings."

He dropped the copter, and the rows of stone houses became plain.

"Should we land?" Thomm asked dubiously. "They're supposed to be fairly rough."

"Certainly, set down," snapped Covill. "We're official representatives of the System."

The fact might mean little to a tribe of mountaineers, reflected Thomm; nevertheless he let the copter drop onto a stony flat place in the center of the village.

The copter, if it had not alarmed the Potters, at least had made them cautious. For several minutes there was no sign of life. The stone cabins stood bleak and vacant as cairns.

Covill alighted, and Thomm, assuring himself that his gamma-gun was in easy reach, followed. Covill stood by the copter, looking up and down the line of houses. "Cagey set of beggars," he growled. "Well

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. . . we better stay here till someone makes a move."

To this plan Thomm agreed heartily, so they waited in the shadow of the copter. It was clearly the village of the Potters. Shards lay everywhere—brilliant bits of glazed ware glinting like lost jewels. Down the slope rose a heap of broken bisque, evidently meant for later use, and beyond was a long tile-roofed shed. Thomm sought in vain for a kiln. A fissure into the side of the mountain caught his eye, a fissure with a well-worn path leading into it. An intriguing hypothesis formed in his mind—but now three men had appeared, tall and erect in gray burnoses. The hoods were flung back, and they looked like monks of medieval Earth, except that instead of monkish tonsure, fuzzy red hair rose in a peaked mound above their heads.

The leader approached with a determined step, and Thomm stiffened, prepared for anything. Not so Covill; he appeared contemptuously at ease, a lord among serfs.

Ten feet away the leader halted—a man taller than Thomm with a hook nose, hard intelligent eyes like gray pebbles. He waited an instant but Covill only watched him. At last the Potter spoke in a courteous tone.

"What brings strangers to the village of the Potters?"

"I'm Covill, of the Planetary Affairs Bureau in Penolpan, official representative of the System. This is merely a routine visit, to see how things are going with you."

"We make no complaints," replied the chief.

"I've heard reports of you Potters kidnapping Mi-Tuun," said Covill. "Is there any truth in that?"

"Kidnapping?" mused the chief. "What is that?"

Covill explained. The chief rubbed his chin, staring at Covill with eyes black as water.

"There is an ancient agreement," said the chief at last. "The Potters are granted the bodies of the dead; and occasionally when the need is great, we do anticipate nature by a year or two. But what matter? The soul lives forever in the pot it beautifies."

Covill brought out his pipe, and Thomm held his breath. Loading the pipe was sometimes a preliminary to the cold sidelong stares which occasionally ended in an explosion of wrath. For the moment however Covill held himself in check.

"Just what do you do with the corpses?" The leader raised his eyebrows in sur-

prise. "Is it not obvious? No? But then you are no potter— Our glazes require lead, sand, clay, alkali, spar and lime. All but the lime is at our hand, and this we extract from the bones of the dead."

Covill lit his pipe, puffed. Thomm relaxed. For the moment the danger was past.

"I see," said Covill. "Well, we don't want to interfere in any native customs, rites or practices, so long as the peace isn't disturbed. You'll have to understand there can't be any more kidnapping. The corpses—that's between you and whoever's responsible for the body, but lives are more important than pots. If you need lime, I can get you tons of it. There must be limestone beds somewhere on the planet. One of these days I'll send Thomm out prospecting and you'll have more lime than you'll know what to do with."

The chief shook his head, half amused. "Natural lime is a poor substitute for the fresh live lime of bones. There are certain other salts which act as fluxes, and then, of course, the spirit of the person is in the bones and this passes into the glaze and gives it an inner fire otherwise unobtainable."

Covill puffed, puffed, puffed, watching the chief with his hard blue eyes. "I don't care what you use," he said, "as long as there's no kidnapping, no murder. If you need lime, I'll help you find it; that's what I'm here for, to help you, and raise your standard of living; but I'm also here to protect the Mi-Tuun from raiding. I can do both—one about as good as the other."

The corners of the chief's mouth drew back. Thomm interposed a question before he spat out an angry reply. "Tell me, where are your kilns?"

The chief turned him a cool glance. "Our firing is done by the Great Monthly Burn. We stack our ware in the caves, and then, on the twenty-second day, the scorch rises from below. One entire day the heat roars up white and glowing, and two weeks later the caves have cooled for us to go after our ware."

"That sounds interesting," said Covill. "I'd like to look around your works. Where's your pottery, down there in that shed?"

The chief moved not a muscle. "No man may look inside that shed," he said slowly, "unless he is a Potter—and then only after he has proved his mastery of the clay."

"How does he go about that?" Covill asked lightly.

"At the age of fourteen he goes forth from his home with a hammer, a mortar, a pound of bone lime. He must mine clay, lead, sand, spar. He must find iron for brown, malachite for green, cobalt earth for blue, and he must grind a glaze in his mortar, shape and decorate a tile, and set it in the Mouth of the Great Burn. If the tile is successful, the body whole, the glaze good, then he is permitted to enter the long pottery and know the secrets of the craft."

Covill pulled the pipe from his mouth, asked quizzically. "And if the tile's no good?"

"We need no poor Potters," said the chief. "We always need bone-lime."

Thomm had been glancing along the shards of colored pottery. "Why don't you use yellow glaze?"

The chief flung out his arms. "Yellow glaze? It is unknown, a secret no Potter has penetrated. Iron gives a dingy tan, silver a gray-yellow, chrome a green-yellow, and antimony burns out in the heat of the Great Burn. The pure rich yellow, the color of the sun . . . ah, that is a dream."

Covill was uninterested. "Well, we'll be flying back, since you don't care to show us around. Remember, if there's any technical help you want, I can get it for you. I might even find how to make you your precious yellow—"

"Impossible," said the chief. "Have not we, the Potters of the Universe, sought for thousands of years?"

. . . But there must be no more taking of lives. If necessary, I'll put a stop to the potting altogether."

The chief's eyes blazed. "Your words are not friendly!"

"If you don't think I can do it, you're mistaken," said Covill. "I'll drop a bomb down the throat of your volcano and cave in the entire mountain. The System protects every man-jack everywhere, and that means protecting the Mi-Tuun from a tribe of Potters who wants their bones."

Thomm plucked him nervously by the sleeve. "Get back in the copter," he whispered. "They're getting ugly. In another minute they'll jump us."

Covill turned his back on the lowering chief, deliberately climbed into the copter. Thomm followed more warily. In his eyes the chief was teetering on the verge of attack, and Thomm had no inclination for fighting.

He flung in the clutch; the blades chewed

at the air; the copter rose, leaving a knot of gray-burnoosed Potters silent below.

Covill settled back with an air of satisfaction. "There's only one way to handle people like that, and that is, get the upper hand on 'em; that's the only way they'll respect you. You act just a little uncertain, they sense it, sure as fate, and then you're a goner."

Thomm said nothing. Covill's methods might produce immediate results, but in the long run they seemed short-sighted, intolerant, unsympathetic. In Covill's place he would have stressed the Bureau's ability to provide substitutes for the bone-lime, and possibly assist with any technical difficulties—though indeed, they seemed to be masters of their craft, completely sure of their ability. Yellow glaze, of course, still was lacking them. That evening he inserted a strip from the Bureau library into his portable viewer. The subject was pottery, and Thomm absorbed as much of the lore as he was able.

Covill's pet project—a small atomic power plant to electrify Penolpan—kept him busy the next few days, even though he worked reluctantly. Penolpan, with its canals softly lit by yellow lanterns, the gardens glowing to candles and rich with the fragrance of night-blossoms was a city from fairyland; electricity, motors, fluorescents, water pumps would surely dim the charm—Covill, however, was insistent that the world would benefit by a gradual integration into the tremendous industrial complex of the System.

Twice Thomm passed by the pottery bazaar and twice he turned in, both to marvel at the glistening ware and to speak with the girl who tended the shelves. She had a fascinating beauty, grace and charm, breathed into her soul by a lifetime in Penolpan; she was interested in everything Thomm had to tell her of the outside universe, and Thomm, young, soft-hearted and lonely, looked forward to his visits with increasing anticipation.

For a period Covill kept him furiously busy. Reports were due at the home office, and Covill assigned the task to Thomm, while he either dozed in his wicker chair or rode the canals of Penolpan in his special red and black boat.

At last, late one afternoon, Thomm threw aside his journals and set off down the street, under the shade of great kaotang trees. He crossed through the central market, where the shopkeepers were busy with late trade,

turned down a path beside a turf-banked canal and presently came to the pottery bazaar.

But he looked in vain for the girl. A thin man in a black jacket stood quietly to the side, waiting his pleasure. At last Thomm turned to him. "Where's Su-then?"

The man hesitated, Thomm grew impatient.

"Well, where is she? Sick? Has she given up working here?"

"She has gone."

"Gone where?"

"Gone to her ancestors."

Thomm's skin froze to stiffness. "*What?*"

The clerk lowered his head.

"Is she dead?"

"Yes, she is dead."

"But—how? She was healthy a day or so ago."

The man of the Mi-Tuun hesitated once more. "There are many ways of dying, Earthman."

Thomm became angry. "Tell me now—what happened to her?"

Rather startled by Thomm's vehemence the man blurted, "The Potters have called her to the hills; she is gone, but soon she will live forever, her spirit wrapped in glorious glass—"

"Let me get this straight," said Thomm. "The Potters took her—alive?"

"Yes—alive."

"And any others?"

"Three others."

"All alive?"

"All alive."

Thomm ran back to the Bureau.

Covill, by chance, was in the front office, checking Thomm's work. Thomm blurted: "The Potters have been raiding again—they took four Mi-Tuun in the last day or so."

Covill thrust his chin forward, cursed fluently. Thomm understood that his anger was not so much for the act itself, but for the fact that the Potters had defied him, disobeyed his orders. Covill personally had been insulted; now there would be action.

"Get the copter out," said Covill shortly. "Bring it around in front."

When Thomm set the copter down Covill was waiting with one of the three atom bombs in the Bureau armory—a long cylinder attached to a parachute. Covill snapped it in place on the copter, then stood back. "Take this over that blasted volcano," he said harshly. "Drop it down the crater. I'll teach those murdering devils a lesson they

won't forget. Next time it'll be on their village."

Thomm, aware of Covill's dislike of flying, was not surprised by the assignment. Without further words he took off, rose above Penolpan, flew out toward the Kuk-mank range.

His anger cooled. The Potters, caught in the rut of their customs, were unaware of evil. Covill's orders seemed ill-advised—headstrong, vindictive, over-hasty. Suppose the Mi-Tuun were yet alive? Would it not be better to negotiate for their release? Instead of hovering over the volcano, he dropped his copter into the gray village, and assuring himself of his gamma-gun, he jumped out onto the dismal stony square.

This time he had only a moment to wait. The chief came striding up from the village, burnoose flapping back from powerful limbs, a grim smile on his face.

"So—it is the insolent lordling again. Good—we are in need of bone-lime, and yours will suit us admirably. Prepare your soul for the Great Burn, and your next life will be the eternal glory of a perfect glaze."

Thomm felt fear, but he also felt a kind of desperate recklessness. He touched his gun. "I'll kill a lot of Potters, and you'll be the first," he said in a voice that sounded strange to him. "I've come for the four Mi-Tuun that you took from Penolpan. These raids have got to stop. You don't seem to understand that we can punish you."

The chief put his hands behind his back, apparently unimpressed. "You may fly like the birds, but birds can do no more than defile those below."

Thomm pulled out his gamma-gun, pointed to a boulder a quarter-mile away. "Watch that rock." And he blasted the granite to gravel with an explosive pellet.

The chief drew back, eyebrows raised. "In truth, you wield more sting than I believed. But"—he gestured to the ring of burnoosed Potters around Thomm—"we can kill you before you can do much damage. We Potters do not fear death, which is merely eternal meditation from the glass."

"Listen to me," said Thomm earnestly. "I came not to threaten, but to bargain. My superior, Covill, gave me orders to destroy the mountain, blast away your caves—and I can do it as easily as I blasted that rock."

A mutter arose from the Potters.

"If I'm harmed, be sure that you'll suffer. But, as I say, I've come down here, against

my superior's orders, to make a bargain with you."

"What sort of bargain can interest me?" said the Chief Potter disdainfully. "We care for nothing but our craft." He gave a sign and, before Thomm could twitch, two burly Potters had gripped him, wrested the gun from his hand.

"I can give you the secret of the true yellow glaze," shouted Thomm desperately. "The royal fluorescent yellow that will stand the fire of your kiln!"

"Empty words," said the chief. Mockingly he asked: "And what do you want for your secret?"

"The return of the four Mi-Tuun you've just stolen from Penolpan, and your word never to raid again."

The chief listened intently, pondered a moment. "How then would we formulate our glaze?" He spoke with a patient air, like a man explaining a practical truth to a child. "Bone-lime is one of our most necessary fluxes."

"As Covill told you, we can give you unlimited quantities of lime, with any properties you ask for. On Earth we have made pottery for thousands of years and we know a great deal of such things."

The Chief Potter tossed his head. "That is evidently untrue. Look"—he kicked Thomm's gamma-gun—"the substance of this is dull opaque metal. A people knowing clay and transparent glass would never use material of that sort."

"Perhaps it would be wise to let me demonstrate," suggested Thomm. "If I show you the yellow glaze, then will you bargain with me?"

The Chief Potter scrutinized Thomm almost a full minute. Grudgingly: "What sort of yellow can you make?"

Thomm said wryly: "I'm not a potter, and I can't predict exactly—but the formula I have in mind can produce any shade from light luminous yellow to vivid orange."

The chief made a signal. "Release him. We will make him eat his words."

Thomm stretched his muscles, cramped under the grip of the Potters. He reached to the ground, picked up his gamma-gun, holstered it, under the sardonic eyes of the Chief Potter.

"Our bargain is this," said Thomm, "I show you how to make yellow glaze, and guarantee you a plentiful supply of lime. You will release the Mi-Tuun to me and undertake never to raid Penolpan for live men and women."

PSORIASIS

Psoriasis may be hereditary, may occur with puberty, may follow upon injury, exposure, shock, worry, faulty nutrition, or faulty elimination. Any one or more of these factors may complicate the trouble. The utmost skill is required to prepare treatment for the various causes and symptoms, and effectively meet the needs of the sufferer.

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"The bargain is conditional on the yellow glaze," said the Chief Potter. "ourselves can produce dingy yellows as often as we wish. If your yellow comes clear and true from the fire, I agree to your bargain. If not, we Potters hold you a charlatan and your spirit will be lodged forever in the basest sort of utensil."

Thomm went to the copter, unsnapped the atom bomb from the frame, discarded the parachute. Shouldering the long cylinder, he said: "Take me to your pottery. I'll see what I can do."

Without a word the Chief Potter took him down the slope to the long shed, and they entered through an arched stone doorway. To the right stood bins of clay, a row of wheels, twenty or thirty lined against one wall, and in the center a rack crowded with drying ware. To the left stood vats, further shelves and tables. From a doorway came a harsh grinding sound, evidently a mill of some sort. The Chief Potter led Thomm to the left, past the glazing tables and to the end of the shed. Here were shelves lined with various crocks, tubs and sacks, these marked in symbols strange to Thomm. And through a doorway nearby, apparently unguarded, Thomm glimpsed the Mi-Tuun seated despondently, passively, on benches. The girl Su-then looked up, saw him, and her mouth fell open. She jumped to her feet, hesitated in the doorway, deterred by the stern form of the Chief Potter.

Thomm said to her: "You're a free woman—with a little luck." Then turning to the Chief Potter: "What kind of acid do you have?"

The chief pointed to a row of stoneware flagons. "The acid of salt, the acid of vinegar, the acid of fluor spar, the acid of saltpeter, the acid of sulphur."

Thomm nodded, and laying the bomb on a table, opened the hinged door, withdrew one of the uranium slugs. Into five porcelain bowls he carved slivers of uranium with his pocket knife, and into each bowl he poured a quantity of acid, a different acid into each. Bubbles of gas fumed up from the metal.

The Chief Potter watched with folded arms. "What are you trying to do?"

Thomm stood back, studied his fuming beakers. "I want to precipitate a uranium salt. Get me soda and lye."

Finally a yellow powder settled in one of his beakers; this he seized upon and washed triumphantly.

"Now," he told the Chief Potter, "bring me clear glaze."

He poured out six trays of glaze and mixed into each a varying amount of his yellow salt. With tired and slumped shoulders he stood back, gestured. "There's your glaze. Test it."

The chief gave an order; a Potter came up with a trayful of tiles. The chief strode to the table, scrawled a number on the first bowl, dipped a tile into the glaze, numbered the tile correspondingly. This he did for each of the batches.

He stood back, and one of the Potters loaded the tiles in a small brick oven, closed the door, kindled a fire below.

"Now," said the Chief Potter, "you have twenty hours to question whether the burn will bring you life or death. You may as well spend the time in the company of your friends. You cannot leave, you will be well guarded." He turned abruptly, strode off down the central aisle.

Thomm turned to the nearby room, where Su-then stood in the doorway. She fell into his arms naturally, gladly.

The hours passed. Flame roared up past the oven and the bricks glowed red-hot—yellow-hot—yellow-white, and the fire was gradually drawn. Now the tiles lay cooling and behind the bricked-up door the colors were already set, and Thomm fought the impulse to tear open the brick. Darkness came; he fell into a fitful doze with Su-then's head resting on his shoulder.

Heavy footsteps aroused him; he went to the doorway. The Chief Potter was drawing aside the bricked-up door. Thomm approached, stood staring. It was dark inside; only the white gleam of the tiles could be seen, the sheen of colored glass on top. The Chief Potter reached into the kiln, pulled out the first tile. A muddy mustard-colored blotch crusted the top. Thomm swallowed hard. The chief smiled at him sardonically. He reached for another. This was a mass of brownish blisters. The chief smiled again, reached in once more. A pad of mud.

The chief's smile was broad. "Leading, your glazes are worse than the feeblest attempts of our children."

He reached in again. A burst of brilliant yellow, and it seemed the whole room shone.

The Chief Potter gasped, the other Potters leaned forward, and Thomm sank back against the wall. "Yellow—"

When Thomm at last returned to the Bureau he found Covill in a fury. "Where

in thunder have you been? I sent you out on business which should take you two hours and you stay two days."

Thomm said: "I got the four Mi-Tuun back and made a contract with the Potters. No more raiding."

Covill's mouth slackened. "You *what*?"

Thomm repeated his information.

"You didn't follow my instructions?"

"No," said Thomm. "I thought I had a better idea, and the way it turned out, I had."

Covill's eyes were hard blue fires. "Thomm, you're through here, through with Planetary Affairs. If a man can't be trusted to carry out his superior's orders, he's not worth a cent to the Bureau. Get your gear together, and leave on the next packet out."

"Just as you wish," said Thomm, turning away.

"You're on company time till four o'clock tonight," said Covill coldly. "Until then you'll obey my orders. Take the copter to the hangar, and bring the bomb back to the armory."

"You haven't any more bomb," said Thomm. "I gave the uranium to the Potters. That was one of the prices of the contract."

"What?" bellowed Covill, pop-eyed. "What?"

"You heard me," said Thomm. "And if you think you could have used it better by blasting away their livelihood, you're crazy."

"Thomm, you get in that copter, you go out and get that uranium. Don't come back without it. Why, you abysmal blasted imbecile, with that uranium, those Potters could tear Penolpan clear off the face of the planet."

"If you want that uranium," said Thomm, "you go out and get it. I'm fired, I'm through."

Covill stared, swelling like a toad in his rage. Words came thickly from his mouth.

Thomm said: "If I were you, I'd let sleeping dogs lie. I think it would be danger-

ous business trying to get that uranium back."

Covill turned, buckled a pair of gammaguns about his waist, stalked out the door. Thomm heard the whirr of copter blades

"There goes a brave man," Thomm said to himself. "And there goes a fool."

Three weeks later Su-then excitedly announced visitors, and Thomm, looked up, two other Potters behind—stern, forbidding in their gray burnoses.

Thomm greeted them with courtesy, offered them seats, but they remained standing.

"I came down to the city," said the Chief Potter, "to inquire if the contract we made was still bound and good."

"So far as I am concerned," said Thomm.

"A madman came to the village of the Potters," said the Chief Potter. "He said that you had no authority, that our agreement was good enough, but he couldn't allow the Potters to keep the heavy metal that makes glass like the sunset."

Thomm said: "Then what happened?"

"There was violence," said the Chief Potter without accent. "He killed six good wheel-men. But that is no matter. I come to find whether our contract is good."

"Yes," said Thomm. "It is bound by my word and by the word of my great chief back on Earth. I have spoken to him and he says the contract is good."

The Chief Potter nodded. "In that case, I bring you a present." He gestured, and one of his men laid a large bowl on Thomm's desk, a bowl of marvelous yellow radiance.

"The madman is a lucky man indeed," said the Chief Potter, "for his spirit dwells in the brightest glass ever to come from the Great Burn."

Thomm's eyebrows shot up. "You mean that Covill's bones—"

"The fiery soul of the madman has given luster to an already glorious glaze," said the Chief Potter. "He lives forever in the entrancing shimmer—"



DIANETICS

The Evolution of a Science

By L. RON HUBBARD

A fact article of genuine importance.

See the Editor's Page.

INTRODUCTION.

THE Editor asked me to write this introduction to one of the most important articles ever to be published in Astounding SCIENCE FICTION, for some very good reasons. First, he wanted to make certain that you readers would *not* confuse Dianetics with thiotimoline or with any other bit of scientific spoofing. This is too important to be misinterpreted. Second, he wanted to demonstrate that the medical profession—or at least part of it—was not only aware of the science of Dianetics, but had tested its tenets and techniques, and was willing to admit that there was something to it.

There is something to it; there is so much to it, in fact, that its potentialities cannot yet be fully comprehended. Those of us who have worked with Dianetics—and that includes the Editor—have seen what it can do, and are convinced of its tremendous importance. I am not going to try to persuade you of its importance to you personally and to the human race; you must determine that for yourself. But while you are exercising your judicious, scientific skepticism, let me give you another point to consider in the meantime.

Dianetics is, in addition to all its other attributes, a thrilling adventure. Ron Hubbard, long a member of the Explorers Club, has gone exploring in the most obscure *terra incognita* of all—the human mind. He has explored a region wherein lies the mightiest power in the known Universe.

The mightiest power known in the Universe today is not the atomic bomb; that power was discovered, developed and controlled by the greater power of human thought. And human thought—our most intimate possession—has been the least known of all powers. Hubbard, in undertaking this research, undertook the greatest adventure any man can imagine—a stranger and more fantastic experience than any visit to the cities of the Arabian Nights. To understand the human mind, he had to find a path into the seat of madness, find a way through that zone of distortion of thought—and on the other side he found the most marvellous mechanism imaginable. He found a computing machine, whose functional capacities transcend those of any yet created by human efforts. It is a machine incapable of error.

working with memory storage banks of infinite capacity and incredibly detailed exactitude.

And Hubbard's discovery of the true nature of this wonderful device, the Human Mind, gives us answers we have never had before. They are engineering answers, developed not by metaphysical word-juggling, but by the engineer's approach to a specific, defined problem. They contradict many of the basic tenets of modern psychotherapeutic theory, and handle many of the principles of psychology.

Modern psychiatry holds that predisposition to insanity is heritable, and that there is no cure for several forms of insanity—they can only be treated by surgically excising a portion of the brain in a prefrontal lobotomy, or—this is an actual and literal description of the operation known as a transorbital leukotomy—by electro-shocking a patient unconscious and running an ice-picklike instrument into the brain by thrusting it through the eye-socket back of the eyeball, and slashing the brain with it.

Dianetics denies this thesis. Insanity is not due to heritable factors—but it is contagious. Any insanity not based on actual organic destruction of the brain can be cured, to regain a more-than-normal mental stability and clarity! Dianetics offers hope where psychiatry can only be gloomy.

Dianetics substantiates a long-felt intuition that neurosurgery is not necessarily the best thing for the human race. A good many of us doctors have felt that the practice of subtotal euthanasia by destruction of the neural pathways to the prefrontal lobes was a medieval treatment. And yet it was the apparent lesser of two evils. Dianetics relegates surgical mutilation of the mind to the same level as blood-letting and blistering.

One final note: the following article will not supply you with sufficient information to make you a dianetic operator. That information will be given in a book being published by Hermitage House.* In order to practice any scientific technique successfully you must know more about it than can be told in an article

* Dianetics: The Modern Science of Mental Health—Manual of Dianetic Therapy—Hermitage House, One Madison Ave., New York City. \$3.00.

of this length. Those of us who are interested in Dianetics want to be certain that, when it is used, it is used properly.

To sum up: I sincerely feel that Ron Hubbard has discovered the key which for the first time permits a true evaluation of the human mind and its function in health and in illness—the greatest advance in mental therapy since man began to probe into his mental makeup. Moreover he has contributed to the welfare of the race by deciding to give freely of the knowledge which took fifteen arduous years of study and research to acquire. There are many who would be tempted to keep this knowledge secret and thereby capitalize on it—but therein lies one of the beauties of Dianetics. A "clear" cannot help but be altruistic, especially when that altruism helps him better to survive.

In this present civilization of ours, where our techniques of destruction dangerously exceed our abilities to survive, there have been many thinkers engaged in a frantic search for a method to control Man's race-homicidal, race-suicidal tendencies. I feel certain that Dianetics is the answer—if you use it and know what you are doing.

JOSEPH A. WINTER, M.D.

The optimum computing machine is a subject which many of us have studied. If you were building one, how would you design it?

First, the machine should be able to compute with perfect accuracy on any problem in the Universe and produce answers which were always and invariably right.

Second, the computer would have to be swift, working much more quickly than the problem and process could be vocally articulated.

Third, the computer would have to be able to handle large numbers of variables and large numbers of problems simultaneously.

Fourth, the computer would have to be able to evaluate its own data and there would have to remain available within it not only a record of its former conclusions but the evaluations leading to those conclusions.

Fifth, the computer would have to be served by a memory bank of nearly infinite capacity in which it could store observational data, tentative conclusions which might serve future computations and the data in the bank would have to be available to the analytical portion of the computer in the smallest fractions of second.

Sixth, the computer would have to be able to rearrange former conclusions or alter them in the light of new experience.

Seventh, the computer would not need an exterior program director but would be

entirely self-determined about its programming guided only by the necessity-value of the solution which it itself would determine.

Eighth, the computer should be self-servicing and self-arming against present and future damage and would be able to estimate future damage.

Ninth, the computer should be served by perception by which it could determine necessity-value. The equipment should include means of contacting all desirable characteristic in the finite world. This would mean color-visio, tone-audio, odor, tactile and self perceptions—for without the last it could not properly service itself.

Tenth, the memory bank should store perceptions as perceived, consecutive with time received with the smallest possible time divisions between perceptions. It would then store in color-visio (moving), tone-audio (flowing), odor, tactile and self sensation, all of them cross-co-ordinated.

Eleventh, for the purposes of solutions, it would have to be able to create new situations and imagine new perceptions hitherto not perceived and should be able to conceive these to itself in terms of tone-audio, color-visio, odor, tactile and self sensation and should be able to file anything so conceived as imagined labeled memories.

Twelfth, its memory banks should not exhaust on inspection but should furnish to the central perceptor of the computer, without distortion, perfect copies of everything and anything in the banks in color-audio, tone visio, odor, tactile and organic sensations.

Thirteenth, the entire machine should be portable.

There are other desirable characteristics but those listed above will do for the moment.

It might be somewhat astonishing, at first, to conceive of such a computer. But the fact is, the machine is in existence. There are about two billion of them in use today and many, many more billions have been made and used in the past.

In fact, you've got one. For we are dealing with the human mind.

The above is a generalization of the optimum brain. The optimum brain, aside from the fact that it is not always capable of solving every problem in the Universe, basically works exactly like that. It should have color-visio (in motion), tone-audio (flowing), odor, tactile and organic

memory recall. And it should have color-visio (in motion), tone-audio (flowing), odor, tactile and organic imagination, also recallable after imagining like any other memory. And it should be able to differentiate between actuality and imagination with precision. And it should be able to recall any perception, even the trivial, asleep and awake from the beginning of life to death. That is the optimum brain, that and much, much more. It should think with such swiftness that vocal pondering would be utterly unable to keep pace with a thousandth part of one computation. And, modified by viewpoint and educational data, it should be *always* right, its answers never wrong.

That is the brain you have, potentially. That is the brain which can be restored to you unless you have had some section of it removed. If it does not do these things, it is slightly out of adjustment.

It took a long time to arrive at the data that this was an optimum brain. In the beginning it was not realized that some people had color-visio—moving—recall, for instance, and that some did not. I had no idea that many people imagined, and knew they were imagining, in tone-audio, et cetera, and would have received with surprise the data that somebody could smell and taste last Thanksgiving's turkey when he recalled it.

Eleven years ago, when the researches which culminated in Dianetic (Gr. dianoua) thought—were started in earnest no such high opinion of the human brain was held. In fact, the project was not begun to trace brain function and restore optimum operation, but to know the key to human behavior and the code law which would reduce all knowledge.

My right to enter this field was an inquiring brain which had been trained in mathematics and engineering and which had a memory bank full of questions and far-flung observations.

It was the basic contention that the human mind was a problem in engineering and that all knowledge would surrender to an engineering approach.

And another primary assumption was made:

All answers are basically simple.

As it stands today, the science of Dianetics and its results—which are as demonstrable as the proposition that water, at fifteen pounds per square inch and 212° F. boils—is an engineering science, built

heuristically on axioms. It works. That is the only claim for Dianetics or chemistry. They may not be True. But they work and work invariably in the finite world.

When the problem had been shuffled around, in the beginning, and when questions had been formulated to be asked of the Universe at large, there was no concept of the optimum brain. Attention was fixed upon the *normal* brain. The *normal* brain was considered to be the optimum brain. Attempts were made, when work finally got around to the problem of the brain itself to obtain results comparable with the normal mind. Minds became aberrated. When restored they would be normal.

In fact, in the beginning, it was not even certain that minds could be restored. All that was required was an answer to existence and the reasons minds aberrated.

In a lifetime of wandering around many strange things had been observed. The medicine man of the Goldi people of Manchuria, the shamans of North Borneo, Sioux medicine men, the cults of Los Angeles, and modern psychology. Amongst the people questioned about existence were a magician whose ancestors served in the court of Kublai Khan and a Hindu who could hypnotize cats. Dabbles had been made in mysticism, data had been studied from mythology to spiritualism. Odds and ends like these, countless odds and ends.

If you were constructing this science, where would you have started? Here were all the various cults and creeds and practices of a whole world to draw upon. Here were facts to a number which makes 10^{21} binary digits look small. If you were called upon to construct such a science and to come up with a workable answer, what would you have assumed, gone to observe or computed?

Everybody and everything seemed to have a scrap of the answer. The cults of all the ages, of all the world seem, each one, to contain a fragment of the truth. How do we gather and assemble the fragments? Or do we give up this nearly impossible task and begin postulating our own answers?

Well, this is the story of how Dianetics was built. This, at least, was the approach made to the problem. Dianetics works, which is what an engineer asks, and it works all the time, which is what nature demands of the engineer.

First, attempts were made to discover

what school or system was workable. Freud did occasionally. So did Chinese apuncture. So did magic healing crystals in Australia and miracle shrines in South America. Faith healing, voodoo, narco-synthesis— And, understand this right here, no mystic mumbo jumbo need apply. An engineer has to have things he can measure. Later the word "demon" is used. That's because Socrates describes one so well. Dianetic use of it, like Clerk-Maxwell's, is descriptive slang. But no wild immeasurable guesses or opinions were wanted. When an engineer uses only those, bridges break, buildings fall, dynamos stop and a civilization goes to wrack.

A primary need, in arriving at a dynamic principle of existence, was to discover what one wanted to know about existence. One does not have to dabble long with the gods to know that they point unvaryingly if divinely up a very blind alley. And an engineering study of mysticism demonstrates that mysticism embraces largely what it cannot hope to state precisely.

The first proposition went off something on this order. Let us find out what we cannot consider or do not need to consider to get an answer we can use. Some tests seemed to demonstrate that the exact identity of the Prime Mover Unmoved was not necessary to the computation. Man has been convinced for a long time that He started this affair, so no great gain could be made in getting disruptive about it. Let us then take a level immediately below the Prime Mover Unmoved.

Now let us see what else falls into the category of data unnecessary to the computation. Well, we've studied telepathy demons, the Indian rope trick and the human soul and so far we have yet to find any constants in this class of data. So let us draw a line below that as our highest level of necessary information and now call this our highest line.

What do we have left? We have the finite world, blue serge suits, Salinas Valley, the Cathedral at Rheims as a building and several decayed empires and roast beef for dinner. We have left only what we can perceive with no higher level of abstraction.

Now, how do we perceive and on what and with what? Ensues here a lot of time spent—1937—in computing out the brain as an electronic calculator with the probable mathematics of its operation plus the impossibility of such a structure capable of doing such things. Let us then rule out the necessity

of knowing structure and use this as an analogy only which can become a variable in the equation if necessary.

Now what do we have? Well, we've been a little hard on demons and the human soul. These are popular but they refuse to stand out and submit to a thorough inspection and caliper mensuration and if they won't co-operate, then neither will we. And so two things come from this reduction of equation factors necessary to solution. First, existence is probably finite, and second, finite factors alone answered the need of the problem.

Probably we could be very obtuse and mathematical here, but no matter. A good, workable heuristic principle, a *workable* one, is worth an infinity of formulas based on Authority and opinions which do *not* work.

All we can do is try the principle. We need a dynamic principle of existence. We look in Spencer and we find something which reads awfully good. It read good when he took it from Indian writings, the same place Lucretius got it. But it only pretends to be dynamic because it doesn't compute. We need a *dynamic* principle, not a description.

But what does a principle mean in a sphere this large? And doesn't it need a better definition? Let us then call it a dynamic lowest common denominator of existence.

Will such a lowest common denominator lead us straight up above the highest level we have set and send us spinning off with a fist full of variables and no answer? It had better not. So let us pose some more questions and see if they clarify the principle.

What can we know? Can we know where life came from? Not just now. Can we know where life is going? Well, that would be interesting but few of us will live to see that. So what can we know? Who, when, why, where, what—WHAT! We can know WHAT life is doing.

Let us postulate now that life started somewhere and is going somewhere. To know where it came from might solve a lot of problems but that seems unnecessary to know at this time for this problem. And the somewhere might be known too some day but again we do not need to know that. So now we have something for the equation which will stay in terms of constants. WHAT is life doing enroute?

Life is energy of some sort. The purpose seems to involve energy. We are being heuristic. No arguments necessary because all we want is something, with a high degree of workability, that's all any

scientist needs. If this won't work, we'll dream up another one and postulate and postulate until something does work.

What is energy doing? It's surviving—changing form, but surviving.

What is life doing? It's surviving.

Now maybe it is doing a whole lot more, but we'll just try this on for size. What is the lowest common denominator of all existence which we have so far found?

SURVIVE!

The only test of an organism is survival. That can be computed.

We can even go so far as to make it colorful and say that there was a beginning of track and at this beginning of track Somebody said SURVIVE! He didn't say why and He didn't say until All He said was SURVIVE!

Well, that's simple and it computes. It makes sense on the slide rule and it makes sense with a lot of activity and it seems pretty good—Let's see.

The brain was a computer-director evolved on the same principles and on the same plan as cells and by cells and is composed of cells. The brain resolved problems relating to survival, asked itself questions about survival, acted upon its own best conceived but personally viewpointed plan for survival.

If one sagged down toward unsurvival, one was goaded up the scale toward survival by pain. One was lured ahead by pleasure into survival. There was a graduated scale with one end in death and the other in immortality.

The brain thought in terms of differences, similarities and identities and all its problems were resolved on these lines and all these problems and all these activities were strictly and solely survival-motivated. The basic command data on which the body and brain operated was SURVIVE! That was all; nothing fell outside this.

It was postulated to see if it worked.

That was in 1938 after several years of study. The axioms began with SURVIVE! SURVIVE! was the lowest common denominator of all existence. They proceeded through axioms as to what man was doing and how he was doing it. Nice definitions for intelligence, drive, happiness, good, evil and so forth fell into line. Suicide, laughter, drunkenness and folly all fell inside this, too, as it computed out.

These computations stood the tests of several years. And then, as you may have heard, came a war. But even wars end. Research was resumed, but now with the

added necessity of applying the knowledge gained to the problems of friends who had not survived the war too well.

A researcher gets out on a rim of the unknown just so far and the guide books run out. In the libraries were thousands and thousands of mental cases, nearly recorded. *And not one case contained in it the essential data to its solution.* These cases might just as well have been written in vanishing ink for all the good they were. Beyond proving conclusively that people manifested strange mental aberrations they were worthless. How do you go about building a science of thought without being permitted to observe and without having any observed data?

Out of a multitude of personal observations in this and distant lands, it was the first task to find a constant. I had studied hypnotism in Asia. I knew hypnotism was, more or less, a fundamental. Whenever shamans, medicine men, exorcists or even modern psychologists go to work, they incline toward practices which are hypnotic.

But of what use is such a terrible, unpredictable variable as hypnotism. On some people it works. On most it doesn't. On those on whom it works it sometimes achieves good results, sometimes bad. Wild stuff, hypnotism.

The physical scientist, however, is not unacquainted with the use of a wild variable. Such erratic things usually hide real, important laws. Hypnotism was a sort of constant thread through all the cults—or hypnotic practices—but perhaps one might at least look at it.

So hypnotism was examined. A wild radical. The reason it was wild might be a good answer. The first investigation of it was quite brief. It did not need to be longer.

Examine a post-hypnotic suggestion. Patient in amnesia trance. Tell him that when he awakens he will remove his left shoe and put it on the mantle. Then tell him that he will forget he has been told and wake him up. He awakens, blinks for a while and then puts his foot forward and removes his shoe. Ask him why. "My foot's too hot." He puts the shoe on the mantle. Why? "I hate to put on a damp shoe. Warmer up here and it will dry." Keep this in mind, this experiment. The full reason for its importance did not appear for nine years. But it was recognized that, with various suggestions, one could create the appearance of various neuroses, psychoses, compulsions and repressions

listed by the psychiatrist. The examination promptly went no further. One had too few answers yet. But it was clear, that *hypnotism and insanity were, somehow, identities*. A search was begun for the reason why.

For a long time and with many, many people attempts were made to unlock the riddle. What caused hypnotism? What did it do? Why did it behave unpredictably?"

Examination was made of hypno-analysis. It sounds good in the texts but it doesn't work. It doesn't work for several reasons, first among them being that you can't hypnotize everybody. Further it works only occasionally, even when a person can be hypnotized. So hypno-analysis was buried along with the water-cure of Bedlam and the pre-frontal lobotomy and the demon-extraction techniques of the shamans of British Guiana and the search for the key which could restore a mind to normal was continued.

But hypnotism wouldn't stay quite dead. Narco-synthesis seemed a good lead, until some cases were discovered which had been "cured" by narco-synthesis. They were re-worked with the technique just to discover what had occurred. Narco-synthesis sometimes seemed to fix a man up so his war neurosis could rise to even greater heights at some future date. No, that is not entirely fair. It produced slightly higher results than a magic healing crystal in the hands of an Australian medicine man. It seemed to do something beyond what it was supposed to do and that something beyond was bad. Here was another with variable, a piece of the puzzle of insanity's cause. We knew WHAT man was doing. He was surviving. Somehow, some way, he occasionally became irrational. Where did hypnotism fit into this? Why did drug hypnotism affect people so adversely at times?

These people one met and worked with did seem to be trapped somehow by something which modern methods almost never touched. And why did whole nations rise up to slaughter nations? And why did religious zealots carry a banner and crescent across three quarters of Europe? People behave as if they'd been cursed by something. Were they basically evil? Was social training a thin veneer? Was the evil curse a natural inheritance from the tooth and claw animal kingdom? Was the brain ever capable of rationality? Hypnotism and

narco-synthesis, unpredictable radicals, refused for a time to divulge answers.

Out of orbit again and without tools with which to work, it was necessary to hark back to the techniques of the Kayan Shaman of Borneo, amongst others. Their theory is crude; they exorcise demons. All right. We postulated that man is evil that the evil is native. Then we ought to be able to increase the civilized veneer by planting in him more civilization, using hypnotism. So the patient usually gets worse. That postulate didn't work. Provisional, let's try the postulate that man is good and follow its conclusions. And we suppose something such as the Borneo Shaman's *Toh* has entered into him which directs him to do evil things.

Man has believed longer that demons inhabit men than man has believed they did not. We assume demons. We look for some demons, one way or another. *And we found some!*

This was a discovery almost as mad as some of the patients on hand. But the thing to do was try to measure and classify demons.

Strange work for an engineer and mathematician! But it was found that the

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"demons" could be classified. There were several "demons" in each patient, but there were only a few classes of "demons." There were audio demons, sub-audio demons, visio-demons, interior demons, exterior demons, ordering demons, directing demons, critical demons, apathetic demons, angry demons, bored demons and "curtain" demons who merely occluded things. The last seemed the most common. Looking into a few minds established soon that it was difficult to find anyone who didn't have some of these demons.

It was necessary to set up an optimum brain. That brain would be postulated, subject to change. It would be the combined best qualities of all brains studied. It would be able to visualize in color and hear with all tones and sounds present, all memories necessary to thought. It would think without talking to itself, thinking in concepts and conclusions rather than words. It would be able to imagine visually in color anything it cared to imagine and hear anything it cared to imagine it would hear. It was discovered eventually that it could also imagine smells and tactuals but this did not enter into the original. Finally it would know when it was recalling and know when it was imagining.

Now, for purposes of analogy it was necessary to go back to the electronic computer idea conceived in 1938. Circuits were drawn up for the visio and audio recall, for color and tone recall, for imagination visio and audio creation and color and tone creation. Then were drawn the memory bank circuits. All this was fairly easy at this time since some extensive work had been done on this in the thirties.

With this diagram, further circuits were set up. The optimum brain was a plain circuit. To this were added the "demon" circuits. It was found that by very ordinary electronics one could install every kind of a "demon" that had been observed.

The "demons" since none of them consented to present themselves for a proper examination as demons, were, it was concluded, installed in the brain in the same way one would install a new circuit in the optimum brain. But as there was just so much brain, it was obvious that these electronic "demons" were using parts of the optimum brain and that they were no more competent than the optimum brain inherently was. This was more postulating. All one wanted was a good result. If this

hadn't worked something else would have been tried.

Thus the solution was entered upon. While the human brain is a shade too wonderful an instrument to be classified with anything as clumsy as contemporary electronics, as marvelous as modern electronics are, the analogy stands. It stands as an analogy. The whole science would hang together brightly now without that analogy. But it serves in this place.

There are no demons. No ghosts and ghouls or *Tohs*. But there are aberrative circuits. So it was reasoned. It was a postulate. And then it became something more.

One day a patient fell asleep. When awakened he was found to be "somebody else." As "somebody else" he was questioned very carefully. This patient, as "himself," had a sonic memory block, an audio memory block and was color-blind. He was very nervous ordinarily. Just now, awakened into being "somebody else" he was calm. He spoke in a lower voice tone. Here, obviously, one was confronting one of these electronic screw-ups the savants call schizophrenics. But not so. This was the basic personality of the patient himself, possessed of an optimum brain!

It was very rapidly established that he had color-visio recall on anything, tone-audio recall, tone-audio and color-visio imagination and entire co-ordinative control. He knew when he was imagining and when he was recalling and that, too, was something he had not been able to do before.

He wanted to know something. He wanted to know when the operator was going to help him get himself squared around. He had a lot of things to do. He wanted to help his wife out so she wouldn't have to support the family. How unlike the patient of an hour before!

He obligingly did some mental computations with accuracy and clarity and then he was permitted to lie down and sleep. He woke up with no recollection of what had happened. He had his old symptoms. Nothing could shake those electronic blocks. He didn't even know if he had eaten lunch, the color of my scarf, and as for his wife, served her right for being a condemned woman.

This was a first introduction to basic personality. It was a long way from a last acquaintance. It was found that it was possible to contact optimum brain operation in a number of people.

And the basic personalities contacted were invariably, strong, hardy and constructively good! They were the same personalities as the patients had in a normal state minus certain mental powers, plus electronic demons and plus general unhappiness. I found that a "hardened criminal" with an obvious "criminal mind" was, in basic personality, a sincere, intelligent being with ambition and co-operative ness.

This was incredible. If this was basic brain, then basic brain was good. Then man was basically good. Social nature was inherent! If this was basic brain—

It was. That is a "clear." But we pull ahead of the story.

People were uniformly miserable being aberrated. The most miserable patient on the rolls had an aberration that made her act "happy" and the most nervous aberee one would ever care to encounter had a mastering aberration about being always "calm." She said she was happy and tried to make herself and everyone believe it. He said he was calm. He instantly flew into a nervous fit if you told him he wasn't calm.

Tentatively and cautiously a conclusion was drawn that the optimum brain is the unaberrated brain, that the optimum brain is also the basic personality, that the basic personality, unless organically deranged, was good. If man were basically good, then only a "black enchantment" could make him evil.

What was the source of this enchantment?

Did we admit superstitions and demons as actualities and suppose the source was something weird and wonderful in the way of ectoplasm? Or did we part company with many current beliefs and become something a little more scientific?

The source, then, must be the exterior world. A basic personality, so anxious to be strong, probably would not aberrate itself without some very powerful internal personal devil at work. But with the devils and "things that go boomp in the night" heaved into the scrap heap, what did we have left? There was the exterior world and only the exterior world.

Good enough; we'll see if this works again. Somehow the exterior world gets interior. The individual becomes possessed of some unknowns which set up circuits against his consent, the individual is aberrated, and is less able to survive.

The next hunt was for the unknown factor. The track looked pretty fair, so far, but the idea was to formulate a science of thought. And a science, at least to an engineer, is something pretty precise. It has to be built on axioms to which there are precious few if any exceptions. It has to produce predictable results uniformly and every time.

Perhaps engineering sciences are this way because natural obstacles oppose the engineer, and matter has a rather unhandy way of refusing to be overlooked because someone has an opinion. If an engineer forms an opinion that trains can run in thin air and so omits the construction of a bridge across a stream, gravity is going to take over and spill one train into one stream.

Thus, if we are to have a science of thought, it is going to be necessary to have workable axioms which, applied with techniques, will produce uniform results in all cases and produce them invariably.

A great deal of compartmentation of the problems had already been done, as previously mentioned or in the course of work. This was necessary in order to examine the problem proper which was man in the Universe.

First we divided what we could probably think about and had to think about from what we probably didn't have to think about, for purposes of our solution. Next we had to think about all men. Then a few men. Finally the individual man and at last a portion of the aberrative pattern of an individual man.

How did the exterior world become an interior aberration?

There were many false starts and blind passages just as there had been in determining what an optimum brain would be. There were still so many variables and possible erroneous combinations in the computation that it looked like something out of Kant. But there is no argument with results. There is no substitute for a bridge heavy enough to hold a train.

I tried, on the off-chance that they might be right, several schools of psychology—Jung, Adler. Even Freud. But not very seriously because over half the patients on the rolls had been given very extensive courses in psycho-analysis by experts, with no great results. The work of Pavlov was reviewed in case there was something there. But men aren't dogs. Looking back on these people's work now, a lot of things they did made

sense. But reading their work and using it when one did *not* know, they didn't make sense, from which can be concluded that rear-view mirrors six feet wide tell more to a man who is driving with a peephole in front than he knew when he was approaching an object.

Then came up another of a multitude of the doctrines which had to be originated to resolve this work. *The selection of importances.* One looks at a sea of facts. Every drop in the sea is like every other drop. Some few of the drops are of vast importance. How to find one? How to tell when it is important? A lot of prior art in the field of the mind—and as far as I was concerned, all of it—is like that. Ten thousand facts, all and each with one apparent unit importance value. Now unerringly select the right one. Yes, once one has found, by some other means, the right one, it is very simple to look over the facts and pick out the proper one and say, "See? There it was all the time. Old Whoosis knew what he was doing." But try it before you know! It's a cinch Old Whoosis did not know or he would have red-tabbed the fact and thrown the others away. So, with this new doctrine of the selection of importances, all data not of personal testing or discovery was jettisoned. I had been led up so many blind alleys by unthorough observation and careless work on the part of forerunners in this business that it was time to decide that it was much, much easier to construct a whole premise than it was to go needle-in-the-haystacking. It was a rather desperate turn of affairs when this came about. Nothing was working. I found I had imbibed, unconsciously, a lot of prior errors which were impeding the project. There were literally hundreds of these "why, everybody knows that—" which had no more foundation in experimentation or observation than a Roman omen.

So it was concluded that the exterior world got interior through some process entirely unknown and unsuspected. There was memory. How much did we know about memory? How many kinds of memory might there be? How many banks was the nervous system running on? The problem was not *where* they were. That was an off-track problem. The problem was *what* they were.

I drew up some fancy schematics, threw them away and drew some more. I drew up a genetic bank, a mimic bank, a social bank, a scientific bank. But they were all wrong.

They couldn't be located in a brain as such.

Then a terrible thought came. There was this doctrine of the selection of importances. But there was another, earlier doctrine—the introduction of an arbitrary. Introduce an arbitrary and if it is only an arbitrary, the whole computation goes out. What was I doing that had introduced an arbitrary? Was there another "why, everybody knows that—" still in this computation?

It's hard to make your wits kick out things which have been accepted, unquestioned, from earliest childhood, hard to suspect them. Another sea of facts, and these in the memory bank of the computer trying to find them.

There was an arbitrary. Who introduced it I don't know but it was probably about the third shaman who practiced shortly after the third generation of talking men had begun to talk.

Mind and body.

There's the pleasant little hooker. Take a good look at it. *Mind AND body.* This is one of those things like a ghost. Somebody said they saw one. They don't recall just who it was or where but they're *sure*—

Who said they were separate? Where's the evidence? Everybody who has measured a mind without the body being present please raise both his hands. Oh, yes, sure. In books. I'm talking to you but I'm not there in the room with you right now. So mind is naturally separate from body. Only it isn't. A man's body can leave footprints. Those are products of the body. The products of the mind can also be viewed when the body is not there, but these are *products of* and the product of the object is not the object.

So let's consider them a unity. Then the body remembers. It may co-ordinate its activities in a mechanism called the brain, but the fact is that the brain is also part of the nervous system and the nervous system extends all through the body. If you don't believe it, pinch yourself. Then wait ten minutes and go back to the time you pinched yourself. Time travel back. Pretend you are all back there. You will feel the pinch; that's memory.

All right. If the body remembers and if the mind and body are not necessarily two items, then what memories would be the strongest? Why, memories that have pain in them, of course. And then what memories would be the strongest? Those which would

have the most physical pain. But these are not recallable!

Maybe it's the wrong postulate, maybe people are in fifty pieces not just one, but let's try it on for size.

So I pinched a few patients and made them pretend they had moved back to the moment of the pinch. And it hurt them again. And one young man, who cared a great deal about science and not much about his physical being volunteered for a nice, heavy knockout.

And I took him back to it and he recalled it.

Then came the idea that maybe people remembered their operations. And so a technique was invented and the next thing I knew I had a memory of a nitrous oxide dental operation laid wide open and in recall, complete with pain.

A great deal of experimentation and observation disclosed the fact that there were no moments of "unconsciousness." And that was another misconception which had held up man's progress.

"Unconsciousness." Some day the word will either be gone or have a new meaning because just now it doesn't really mean a thing.

The *unconscious mind* is the mind which is *always conscious*. So there is no "unconscious mind." And there is no "unconsciousness." This made modern psychology look like Tarawa after the marines had landed; for this is about as easy to prove as the statement that when an apple is held three feet in the air and let fall, it drops, conditions being normal.

It was necessary, then, to redraw all the circuit diagrams and to bring forth some terminology which would not be quite as erroneous as "unconsciousness" and "the unconscious mind."

For handy purposes, in view of the fact that I had got myself into difficulties before by using words with accepted meanings, I turned some adjectives into nouns, scrambled a few syllables and tried to get as far as possible from the focus of infection: Authority. By using old terms, one interposes, in communication, the necessity of explaining away an old meaning before he can explain the new one. A whole chain of thought can get thoroughly jammed up in trying to explain that while this word meant ----- it now means -----. Usually, in communications, one is not permitted to get beyond an effort to explain one does not mean -----.

Now there is no reason here to go into an evolution of terms in Dianetics. The cycle of the evolution is not yet complete. And so I will place here terms which were long afterwards conceived. They are not yet stet. But their definitions are not quibbles: the order of definition is clear in the order of apples are apples.

The important thing is what we are defining. There were several heuristic principles on which the initial work was based which were "understood." One was that the human mind was capable of solving some of the riddles of existence. At this stage in the evolution of Dianetics, after "unconsciousness" had been smoked out of the "why, everybody knows that—" class of information and labeled it for what it was, an error, it was necessary to look over some of the "understood" postulates of 1938. And one of those "everybody knows" postulates has been that the human mind is not capable of understanding the workings of the human mind.

And "everybody knew that" the human mind was liable to err, that it was stupid, and was very easily aberrated by such small things as because papa loved mama and Jimmy wanted to love mama too.

And "everybody knew that" the workings of the human mind were enormously complex; so involved that a complete direct solution of the problem was impossible. That, in effect, the human mind was a Rube Goldberg device built up of an enormously unstable and delicately balanced pile of odd-shaped bits of emotion and experience, liable to collapse at any time.

From the engineering viewpoint, that seems a little strange. Two billion years of evolution, a billion successive test models, would tend to produce a fairly streamlined, functional mechanism. After that much experience, animal life would be expected to produce a truly functional mechanism—and Rube Goldberg's devices are amusing because they are so insanely nonfunctional. It somehow doesn't seem probable that two billion years of trial and error development could wind up with a clumsy, complex, poorly balanced mechanism for survival—and that jerry-built thing an absolute master of all other animal life!

Some of those "everybody knows that—" postulates' needed checking—and checking out of the computation.

First, everybody knows that "to err is human." And second everybody knows that

we are pawns in the hairy grasp of some ogre who is and always will be unknown.

Only this didn't sound like engineering to me. I'd listened to the voodoo drums in Cap Haitien and the bullhorns in the lama temples of the Western Hills. The people who beat those drums and blew those horns were subject to disease, starvation and terror. Looked like we had a ratio at work here. The closer a civilization—or a man—moved toward admitting the ability of the human mind to compute—the closer the proposition was entered that natural obstacles and chaos were susceptible to orderly solution—the better he—or they—fared in the business of living. And here we were back with our original postulate again. SURVIVE! Now this computation would be warranted only if it worked.

But it was a not unwarrantable conclusion. I had had experience now with basic personality. Basic personality could compute like a well greased Univac. It was constructive. It was rational. It was sane.

And so we entered upon the next seven league boot stride in this evolution. What was sanity? It was rationality. A man was sane in the ratio that he could compute accurately, limited only by information and viewpoint.

What was the optimum brain? It was an entirely rational brain. What did one have to have to be entirely rational? What would any electronic computer have to have? All data must be available for inspection. All data it contained must be derived from its own computation or it must be able to compute and check the data it is fed. Take any electronic calculator . . . no, on second thought, don't take them. They're not smart enough to be on the same plane with the mind because they are of a greatly sub order of magnitude. Very well, let's take the mind itself, the optimum mind. Compare it to itself. When did man become sentient? It's not absolutely necessary to the problem or these results to know just when or where man began to THINK, but let's compare him to his fellow mammals. What does he have that the other mammals don't have? What can he do that they can't do? What does he have that they have?

All it takes is the right question. What does he have that they have? He does have something—and he has something more than they have. Is it the same order? More or less.

You never met a dog yet that could drive a car, or a rat that could do arithmetic.

But you have men that couldn't drive a car, and men that couldn't do much better with arithmetic than a rat. How did such men vary from the average?

It seemed that the average man had a computer that was not only better, it was infinitely finer than any animal's brain. When something happens to that computer, man is no longer MAN but a dog or a rat, for purposes of comparison in mental power.

Man's computer must be pretty good. After all those millions of years of evolution, it should be—in fact it should, by this time, have evolved a perfect computer, one that didn't give wrong answers because it couldn't make a mistake. We've already developed electronic computing machines so designed, with such built-in self-checking circuits, that they *can't* by their very nature, turn out a wrong answer. Those machines stop themselves and summon an operator if something goes wrong so that the computer starts producing a wrong answer. We know how to make a machine that would not only do that, but set up circuits to find the error, and correct the erring circuit. If men have figured out ways to do that with a machine already—

I had long since laid aside the idea that one could do this job by dissecting a neurone. Dead, they don't talk. Now I had to lay aside the idea that the brain's structural mechanism could even be guessed at this stage. But working on the heuristic basis of what-works, it is not necessary to know *how* it is done in terms of physical mechanism if we can show that it *is* done. It was convenient to use electronic circuits as analogs, and the analogy of an electronic brain, because I knew the terms of these things. The brain may or may not run on electric currents; what things can be measured in and around it by voltmeters are interesting. But electricity itself is measured indirectly today. Temperature is measured by the coefficient of expansion caused by temperature. Encephelographs are useful working around a brain but that doesn't mean that the brain is as clumsy and crude as a vacuum tube rig. This was a necessary step because if the problem were to be solved one had to suppose that the brain could be patched up and with some method decidedly short of surgery.

So here was what I seemed to be working with: a computing machine that could work from data stored in memory banks, and was

so designed that the computer circuits themselves were inherently incapable of miscalculation. The computer was equipped with sensing devices—the sensory organs—which enabled it to compare its conclusions with the external world, and thus to use the data of the external world as part of the checking feedback circuits. If the derived answers did not match the observed external world, since the computing circuits were inherently incapable of producing a wrong computation, the data used in the problem must itself be wrong. Thus, a perfect, errorless computer can use external world data to check the validity of and evaluate its own data input. Only if the computational mechanism is inherently error-proof would this be possible. But men have already figured out mechanically simple ways of making an error-proof computer—and if man can figure it out at this stage of the game, two billion years of evolution could and would.*

How did the mind work? Well, to solve this problem we did not have to know. Dr. Shannon commented a few months ago that he had tried every way he could think of to compute the material in the memory bank of the brain, and he had been forced to conclude that the brain could not retain more than three months' worth of observations if it recorded everything. And dianetic research reveals that everything is recorded and retained. Dr. McCulloch of the University of Illinois, postulating the electronic brain last year is said to have done some computation to the effect that if the human brain cost a million dollars to build, its vacuum tubes would have to cost about 0.1 cent each, that the amount of power it would consume would light New York City and that it would take Niagara Falls to cool it. To these competent gentlemen we deliver up the problems of structure. To date Dianetics has not violated anything actually known about structure. Indeed, by studious application of dianetic principles, maybe the problem of structure can be better approached. But at a swoop, we have all this off our minds. We are dealing with function and ability and the adjustment of that function to the end of obtaining maximum operation. And we are dealing with an inherently perfect calculator.

*The system of the error-proof computer is easily understood. Imagine a vacuum-tube computer circuit. If one tube fails to function properly, the computer will turn out wrong

answers every time that tube is required in the computation circuit. But suppose we set up two identical computers; now if a vacuum tube fails, the two, running the same problem in parallel, will get different answers—which indicates at once that there is a defect somewhere. This system is used in present computers which, when the different-answer situation arises, summon the operator. But if *three* computers simultaneously calculate in parallel on each problem, it is possible to determine not only that a defect exists in one computer chain, but also to determine which contains the defect, and what the correct answer is. Now the defective unit can be located and replaced by the machine itself. No machines man has made have that feature; it requires a triple unit, and units are too expensive. But man's brain uses some eighteen billion neurones; the brain can afford to run all problems in triplicate, and must to achieve an inherently error-free computer. Only by having an error-free computer can the immensely important function of data-evaluating be made possible.

We are dealing with a calculator which runs entirely on the principle that it must be right and must find out why if it isn't right. Its code might be stated as "And I pledge myself to be right first, last and always and to be nothing but right and never to be, under any circumstances, wrong."

Now this is what you would expect of an organ dedicated to computing a life and death matter like survival. If you or I were building a calculator, we'd build one that would always give correct answers. Now, if the calculator we build was also itself a personality, it would maintain that it was right as well.

Having observed this computer in its optimum state as the basic personality, the conclusion was very far from a mere postulate. And so we will call this computer the "analytical mind." We could sub-divide things further and get complicated by saying that there is an "I" as well as a computer, but this leads off in some direction or other which, as things work out, isn't of much use at this time. And so the "analytical mind" or the "analyzer" is a computer and the "I" for our purposes. All we want is a good *workable solution*.

The next thing we must consider is what apparently makes man a sentient being and that consideration leads us into the conclusion that possession of this analyzer raises man far above his fellow mammals. For as long as man is rational, he is superior. When that rationality reduces, so does his state of being. So it can be postulated that it is this analyzer which places the gap between a dog and a man.

Study of animals has long been popular with experimental psychologists, but they must not be mis-evaluated. Pavlov's work was interesting; it proved dogs will be dogs. Now by light of these new observations and deductions it proved more than Pavlov knew. It proved men weren't dogs. Must be an answer here somewhere. Let's see. I've trained a lot of dogs. I've also trained a lot of kids. Once I had a theory that if you trained a kid as patiently as you trained a dog, then you would have an obedient kid. Didn't work. Hm-m-m. That's right. It didn't work. The more calmly and patiently one tried to make that kid into a well-trained dog—"Come here" and he'd run away—hm-m-m. Must be some difference between kids and dogs. Well, what do dogs have that kids don't have. Mentally, probably nothing. But what do kids have that dogs don't have. A good analytical mind!

Let us then observe this human analytical mind more closely. It must have a characteristic dissimilar to animal minds—minds in lower orders of mammals. We postulate that this characteristic must have a high survival value, it is evidently so prominent and widespread and the analyzer—hm-m-m.

The analyzer must have some quality which makes it a slightly different thinking apparatus than those observed in rats and dogs. Not just sensitivity and complexity. Must have something newer and better. Another principle? Well, hardly a whole principle but—

The more rational the mind, the more sane the man. The less rational the mind, the closer man approaches in conduct his cousins of the mammalian family. What makes the mind irrational?

I set up a series of experiments, using the basic personalities I could contact above or below the level of the aberrated personalities and in these confirmed the clarity and optimum performance of the basic computer. Some of these patients were quite aberrated until they were in an hypnotic amnesia trance at which time they could be freed of operator control. The aberrations were not present. Stutterers did not stutter. Harlots became moral. Arithmetic was easy. Color-visio, tone-audio recall. Color-visio, tone-audio imagination. Knowledge of what was imagination and what wasn't. The "demons" had got parked somewhere. The circuits and filters causing

aberration had been by-passed, to be more precisely technical and scientific.

Now let's postulate that the aberrative circuits have been somehow introduced from the external world—covered that ground pretty well, pretty solid ground.

And here's an answer. The introduced by-pass circuits and filters became the aberrations in some way we did not yet understand. And what new complexion did this give the analyzer?

Further research tended to indicate that the answer might be contained in the term "determinism." A careful inspection of this computation confirm observations. Nothing was violated. Did it work?

Let's postulate this perfect computer. It is *responsible*. It has to be responsible. It is *right*. It has to be right. What would make it wrong? Exterior determinism beyond its capacity to reject. *If it could not kick out a false datum it would have to compute with it.* Then, and only then, would the perfect computer get wrong answers. A perfect computer had to be *self-determined* within the limits of necessary efforts to solve a problem. No self-determination, bad computation.

The machine had to be in a large measure *self-determined* or it would not work. That was the conclusion. Good or bad, did it lead to further results?

It did.

When exterior determinism was entered into a human being so as to overbalance his self-determinism the correctness of his solutions fell off rapidly.

Let's take any common adding machine. We put into it the order that all of its solutions must contain the figure 7. We hold down 7 and put on the computer the problem of 6×1 . The answer is wrong. But we still hold down 7. To all intents and purposes here, that machine is crazy. Why? Because it won't compute accurately so long as 7 is held down. Now we release 7 and put a very large problem on the machine and get a correct answer. The machine is now sane—rational. It gives correct answers. On an electronic computer we short the 7 so it is always added in, no matter what keys are punched. Then we give the machine to a storekeeper. He tries to use it and throws it on the junk heap because it won't give correct answers and he doesn't know anything about troubleshooting electronics and cares less. All he wants is a correct total.

Admitting the analytical mind computation, and admitting it only so long as it works, where does it get a held-down 7—an enforced wrong datum?

Now a computer is not necessarily its memory bank. Memory banks can be added and detached to a standard computer of the electronic type. Where do we look for the error? Is it in the memory bank?

The search for what was holding down 7 involved quite a little hard work and speculation and guesses. Some more work had to be done on the computer—the analytical mind. And then came what seemed to be a bright thought. Supposing we set up the whole computer as the demon. A demon that is always and invariably right. Let's install one in a brain so that the computer can project outside the body and give the body orders. Let's make the computer a circuit independent of the individual. Well, hypnotism has some uses. Good tool for research sometimes even if it is a prime villain in aberration.

Two things happened the moment this was done. The computer could direct the body as an "exterior entity" and draw on the memory banks at will for anything. *Seven was no longer held down.*

Naturally this was a freak test, one that could be set up only in an excellent hypnotic patient. And it could be installed only as a temporary thing.

This artificial demon knew *everything*. The patient could hear him when the patient was awake. The demon was gifted with perfect recall. He directed the patient admirably. He did computations by moving the patient's head—automatic writing—and he did things the patient evidently could not do. But why could it? We had artificially split the analyzer away from the aberrated patient, making a new bypass circuit which by-passed all the aberrated circuits. This would have been a wonderful solution if it had not been for the fact that the patient was soon a slave to the demon and that the demon, after a while, began to pick up aberrations out of the plentiful store the patient had. But it served to test the memory banks.

Something must be wrong about these banks. Everything else was in good order. The banks contained an infinity of data which appalled one in its very completeness. So there ensued a good, long search to find something awry in the banks. In amnesia sleep or under narco-synthesis, the banks could be very thoroughly ransacked.

By automatic writing, speaking and clairvoyance they could be further tapped.

This was a mad sort of way to go about things. But once one started to investigate memory banks, so much data kept turning up that he had to continue.

There's no place here for a recital of everything that was found in the human memory bank, its completeness, exactness and minuteness or its fantastically complicated, but very smart cross-filing system. But a resumé is necessary of some high points.

In the first place the banks contain a complete color-video record of a person's whole life, no matter the "demon" circuits. The last occlude or falsify. They do not alter the bank of the accuracy of the bank. A "poor" memory means a curtained memory, the memory being complete. *Every perception observed in a lifetime is to be found in the banks.* All the perceptions. In good order.

Memories are filed by time. They have an age and emotional label, a state-of-physical-being label and a precise and exhaustive record of everything perceived by organic sensation, smell, taste, tactile, audio and visio perceptics plus the train of thought of the analyzer of that moment.

There is no inaccuracy in the banks. Inaccuracy can, of course, be caused by surgery or injury involving actually removed portions. Electric shock and other psychiatric efforts are equivocal. Pre-frontal lobotomy is such certain and complete mind-murder that one cannot be certain thereafter of anything in the patient except zombiism.

Anyway, the memory banks are so fantastically complete and in such good order behind the by-pass circuits in any man not organically tampered with, that I very nearly wore out the rug trying to conceive it. Very well, there was something between the banks and the analyzer. Must be. The banks were complete. The circuits were intact. In any patient organically sound—and that includes all patients who have psychosomatic ills—the basic personality was apparently intact, the banks were intact. But the banks and the analyzer somehow did not track.

Well, let's take another look. This is an engineering problem. So far it has surrendered beautifully to engineering thought and computation. Apparently it should go right on surrendering. But let's look at

Freud. There's his Censor. Let's see if there's a censor between the banks and the analyzer.

That folded up in about two seconds Mex. The censor is a composite of by-pass circuits and is about as natural and necessary to a human being as the fifth wheel on a monocycle. There isn't any censor. Served me right for trying to lean on Authority. In terms of authority, if you can spell it it's right. In terms of engineering, if it can't be found and measured in some fashion, it's probably absent.

I rechecked the memory banks. How was I withdrawing data? I was using automatic writing for some, by-pass circuit for others, direct regression and revivification on the old line Hindu principle for others. I set about trying to classify what kind of data I was getting with each method of recall. All of a sudden the problem fell apart. By automatic writing I was getting data not available to the analyser. By by-pass I was getting data not available otherwise. By regression and revivification material was being procured only a little better than could be recalled by the tranced subject. The data I could check was found to be invariably accurate by any of these methods. What was the difference between automatic writing data and simple trance data?

I took a patient's automatic data and regressed him to its period. He could not recall it. The data concerned a broken leg and a hospital. I bucked him into the incident by main force.

The patient received a very sharp pain in the area of the old break.

This was a long way from hypo-analysis. This was an effort to find an interposition between memory banks and analyzer, not an effort to relieve "traumatic experiences."

And there was the answer. Why not? Very simple. It had been sitting right there staring at me since 1938. Oh, these six-foot wide rear-view mirrors! I had even made a law about it.

The function of the mind included the avoidance of pain. Pain was unsurvival. Avoid it.

And that's it—the way to hold down seven! You can hold it down with physical pain! The exterior world enters into the man and becomes memory bank. The analyzer uses memory bank. The analyzer uses the exterior world. The analyzer is caught between yesterday's exterior world

now interior and today and tomorrow's exterior world, still exterior.

Can it just be that this analyzer gets its data on one perceptive circuit. Can it be that that perceptive circuit carries yesterday and today both? Well, however that may be, the analyzer certainly behaves to yesterday's interior world the same way it behaves to today's exterior world so far as the avoidance of pain goes. The law works both ways.

The analyzer avoids yesterday's pain as well as today's pain. Well, that's reasonable. If you avoid yesterday's pain in today's environment, you have a much better chance to survive. In fact—But see here, there's more to the problem than this. If the analyzer had a clear view of yesterday's pain it could better avoid it in today. That would be good operation.

That was the "flaw" in the machine. But it was a highly necessary "flaw." Just because an organism is built to survive, moulded to survive and intended to survive does not mean that it will, as a matter of course, be perfect.

But the analyzer was perfect.

The banks were perfect.

The analyzer just plain wouldn't ever let the irrationalities of exterior world inside as long as it could help it.

As long as it could help it!

I was probing now for the villain of the piece. He was not found for a while. Many experiments were made. Efforts were made to make several patients well by simply breaking through the pain wall the analyzer was "seeking to avoid." A lot of painful incidents were broken, mental and physical anguish by the library full, and without much relief. The patients relapsed.

Then it was discovered that when a patient was bucked through a period when he was "unconscious," he showed some improvement. Then it was discovered that these "unconscious" periods were rather like periods of hypnosis driven home by pain. The patient responded as though the "unconscious period" had been post-hypnotic suggestion!

From this series of experiments a prime datum was picked up. You relieve the pain and the "unconsciousness" and the suggestive power goes away. The subject did not have to have any of the mumbo jumbo of hypnosis in this "unconscious period." But every perceptive perceived tended to aberrate him.

I did not realize until then that I was playing tag with a hitherto unappreciated mid-evolution step in man. If he was once a poly-wog, he had never lost any of the parts he had evolved through. How does a fish think?

Well, let's see how a fish would respond to pain. He is swimming in brackish water of yellow color over a green bottom, tasting shrimp. A big fish hits him a whack, misses but does not kill him. Our fish lives to come back another day. This time he swims into an area of brackish water with a black bottom. He gets a little nervous. Then the water becomes a yellow color. The fish becomes very, very alert. He coasts along and gets over a green bottom. Then he tastes shrimp and instantly swims away at a terrific rate.

Now, what if man still had his lower organism responses? Well, it seemed, on experiment, that he did. Drug him with ether and hurt him. Then give him a whiff of ether and he gets nervous. Start to put him out and he begins to fight. Other experiments all give the same conclusion.

Lower organisms can be precisely and predictably determined in their responses. Pavlov's dogs. Any dog you ever trained. The dog may have something of an analyzer too, but he is a pushbutton animal. And so is man. Ah, yes, so is man. You know, just like rats.

Only man isn't! Man has a wide power of choice. Interfere with that wide power and there's trouble brewing. Aberrate him enough and he's unpredictably pushbuttonable. Cut his brain out with a knife—and he can be trained to speak woof-woof for his food. But by golly, you better cut pretty well to get a good, satisfactory one hundred percent of the time woof-woof!

What happens when a man gets "knocked out"? He "isn't there." *But all the memory recordings during the period are.* What happens when you knock him half out? He does strange, automatic things. What happens when his analyzer is so aberrated that . . . hey! Wait! How would you build a good, sensitive analyzer? Would you leave it connected to every shock? Huhuh! You'd fuse it so it would live to think another day. In an emergency what kind of a response do you want. Automatic!

Stove hot, hand on stove, withdraw hand. Do you do a computation on that? No indeed. What withdrew the hand? The analyzer? No. What happened to the analyzer for an instant during the shock? The

analyzer goes out of circuit and leaves a mechanical determining director in full charge! A good, fast identity-thinking director.

The analyzer does not think in identities. It thinks in differences, similarities. When it loses its power to differentiate and thinks in identities—No, it never does that. That's madness and the analyzer does *not* go mad. But something around here thinks in identities. Start working on a patient and find out that hash equals snow equals an ache in the knee —That's identity thinking.

We don't know here what really happens to that analyzer. But we do know that we have found something which interposes between the banks and the computer. Something which thinks in identities, has a high priority over reason during moments of stress, can be found whenever a man is sent into some of yesterday's unconscious moments.

We know what it does now. It takes command when the analyzer is out of circuit. Whether or not it is the old style mind which man did not shed while graduating to sentience by developing an analyzer is beside the point. Whether or not it is a structural entity of a combination of "unconscious periods" is equally outside our concern here. We are working in function and we want answers that work every time.

Call this the *reactive mind*. It is a mind which is constructed to work in moments of enormous physical pain. It is rugged. It works all the way down to the bottom and within a millimeter of death. Maybe it's almost impossible to build a sharply sentient mind which would operate under the terrible conditions of agony in which we find the reactive mind operating. Maybe the reactive mind . . . well, that's structure. Here it is as function.

The reactive mind thinks in identities. It is a stimulus-response mind. Its actions are exteriorly determined. It has no power of choice. It puts physical pain data forward during moments of physical pain in an effort to save the organism. So long as its mandates and commands are obeyed it withholds the physical pain. As soon as the organism starts to go against its commands, it inflicts the pain.

The fish, had he failed to swim away when in a danger area where he had been attacked would have been forced away by the crude mechanism of pain going into restimulation. No swim equals aching side. Swim equals all right.

The analyzer blows its fuses as any good machine would when its delicate mechanism is about to be destroyed by overload. That's survival. The reactive mind kicks in when the analyzer is out. That's survival.

But something must go wrong. This was a pretty good scheme of things. But it didn't always work.

Or it worked too well.

Thus were discovered the reactive memory bank and its total content, the norns and their locks. A norn—Norse: a hidden witch which guides man's fate all unknown to him—is simply a period of physical pain when the analyzer is out of circuit and the organism experiences something it conceives to be or which is contrary to its survival. A norn is received only in the absence of the analytical power.

When the analyzer is out of circuit, data of high priority value can pass, without evaluation by the analyzer, into the memory bank. There it becomes a part of the emergency bank. This is a red-tab bank, the reactive mind, composed of high priority, dangerous situations which the organism has experienced. The reactive mind has this bank as its sole source of information. The reactive mind thinks in identities with this red-tab bank. So long as the analyzer is *fully* in circuit, the re-tab bank is nul and void. With the analyzer partially out of circuit—as in weariness, drunkenness, or illness—a part of this bank can cut in.

Let's begin to call "unconsciousness" a new word: ANATEN. Analytical attenuation. There is great or lesser anaten. A man goes under ether. He becomes anaten. He is hit in the jaw and is anaten.

Now what does a norn contain? Clinical examination of this object of interest demonstrates that the norn consists of anaten, time, physical age, emotion, physical pain, and every percept in order of sequence. Words, sights, smells, everything that was there.

We had to organize a new subscience here to think about norns properly. It's the science of percepts. Know your general semantics? Well, same organization only we take in all the percepts and we show where the meaning of each percept originates and why man can't nonidentify with ease and aplomb so long as he has norns.

The automatic writing I was getting was straight out of norns. That and by-pass circuits would disclose data received during anaten—norns. And then I discovered that

these norns had a peculiar faculty. They could create their own circuits, parasitically using the host circuits.

Here's how a norn can be established: Mary, age 2, knocked out by dog, dog bites. Content of norn: anaten; age 2 (physical structure); smell of environment and dog; sight of dog jaws gaping and white teeth; organic sensation of pain in back of head (hit pavement); pain in posterior; dog bite in cheek, tactile of dog fur; concrete (elbows on pavement) hot dog breath; emotion; physical pain plus endocrine response; audio; dog growl and passing car.

What Mary does with norn: She does not "remember" the incident but sometimes plays she is a dog jumping on people and biting them. Otherwise no reaction. Then, at age 10, similar circumstances, no great anaten, the norn is restimulated. After this she has headaches when dogs bark or when cars pass that sound like *that* car, but only responds to norn when she is tired or harassed otherwise. The norn was first dormant—data waiting just in case. Next it was keyed-in—stuff we have to watch out for. Then it was thereafter restimulated whenever any combination of its percepts appeared while Mary was in slight anaten (weary). When forty years of age she responded in exactly the same way, and still has not the slightly conscious understanding of the real reason!

Now let's consider what would have happened if Mary's mama had yelled something really choice, normally speaking: "Be calm! Be calm! Oh, my darling, it's always this way. Get out, get out!" Something mama had tucked away as the proper thing to do and say, normally, when dogs bite daughters.

We here have what amounts to a post-hypnotic suggestion: identity (equals) thought. All the percepts equal all the words equals a dog equals mama equals get out, et cetera, et cetera, et cetera, and each equals all and any part of each. No wonder nobody could compute a madman! This is irrationality de luxe. Literally, this computation of identity thought makes no sense. But it's survival data and it better be obeyed or the cheek will hurt, the head will ache and the elbows will get a permanent "dermatitis."

But remember that this morn also had, at a tab, anaten, the exact degree of anaten present during that moment. The analyzer is a fine device but it is also, evidently, a physical organ, probably the pre-frontal

lobes and organic sensation includes several things. Restimulation brings about this state of affairs: "Analyzer shut off." "Reactive mind to cells. Red-tab dog in sight. Shut off analyzer. This is a priority situation. That is all."

The degree of anaten is very far from the original in the norn. But it is sufficient to produce a reduced state of analyzing, in effect a reduced sanity. The subject just has a feeling of dull, stupid mental confusion many times, a sort of dumb, unreasoned and unidentified emotion that seems to stop thought in numbness. You've had it! Thus we have a situation which begins to approach a pushbutton determinism. The norn which has become keyed-in can, when the individual is slightly anaten—wary, ill, sleepy—be pushbuttoned. Use the key word to the slightly anaten subject which is contained in one of his norns and one of that norn's reactions may be observed. Push the button thoroughly enough and a full dramatization can be effected—he will *re-enact* the original situation!

Thus the red-tab "memory" bank of the reactive mind. The discovery of this bank is one of the several original discoveries of dianetics. Many parts of dianetics can be found, if improperly evaluated, in old philosophic schools or in modern practice, but there remain a few entirely new facets which have no prior art. This red-tab bank is a very special affair and is quite different in composition, content and circuit from the analytical banks—conscious banks containing data which can be "remembered."

The reason this bank was never discovered before is not difficult to find. The red-tab bank content was implanted when the analyzer was out of circuit—unconscious. It is located then many stratas below conscious awareness in the stupefactions of a physical knock-out. When one tried to get to it with hypnotism or narco-synthesis he was confronted with a patient who simply looked knocked-out, who was unresponsive to everything. As narco-synthesis and hypnotism both savor of sleep, the deeper sleep of the composite whole of all the past knock-outs of a lifetime render the patient entirely insensible even when one was squarely on top of the reactive bank. So this bank remained hidden and unknown. And that is a sad thing because unless one knows about this bank the entire problem of man's imperfection, his insanity, his wars, his unhappiness, can go begging or get into

the files of a shaman or a neuro-surgeon. Much more widely, the hidden character of this bank can be said to be responsible for irrational conduct on the part of all mankind. And how many lives has that cost in the last four thousand years?

It is a very peculiar sort of a bank. It is the *only* bank in the human mind from which any content can be exhausted. All its content is pain and unconsciousness. And only physical pain can be deleted from the mind. Now wouldn't you say that this was a peculiar sort of a bank? Here it is with its bunkers full of high priority but false survival data. Here it is full of experiences which, because of the way they are filed, can drive a man to suicide or other madness. Here it is with its memories all ready to click into the motor controls of the body ready, without so much as by-your-leave from the sentient analyzer, to make a man run insanely until he drops from heart failure. Here it is able to change the perfect structure of the body into a nightmare thing with a fetuslike face and wasted or undeveloped limbs. Here it is ready to manufacture anything you can name by way of physical ills or at least to predispose them, possibly even cancer. Here it is filling hospitals, mental institutions and jails. And yet it is the one portion of human memory that can be modified and changed!

What price some of the old philosophies when the only reducible "memory" is one of pain?

Try any technique you can name on a pleasant or even a merely passing memory in one of the conscious banks. It will stay right where it is, indelible, particularly the pleasurable ones. But a "memory" in the red-tab bank, when properly approached by dianetic technique, will vanish out of that bank entirely. It refiles as a memory in the conscious level banks and as such, by the way, is fantastically difficult to locate—on the order of what you ate for dinner on June 2nd when you were two years of age—and when found bears the tag "found to be nonsurvival data, do not permit it or similar data into any fundamental computations." And one of these unconscious "memories" when treated, produces about the same emotional response afterwards as a mildly amusing joke.

The red-tab bank could cause circuits to be set up which looked and sounded like demons. It could occlude the conscious bank in part or so thoroughly that it appeared that there was no past. It could

command and order a person about like a moron might control a robot. And yet it is perishable. And it can be de-intensified and refiled, with consequent great increase in the survival chances of a man. All its content is contra-survival. When it is gone, survival is demonstrably enhanced—and that means what it says and the fact can be proven in a clinical laboratory with an experiment on the order of "is this water?"

Pleasure memories can be attacked with various techniques. But they are set. They won't budge. Refile the reactive memories and the whole conscious lifetime of the individual springs into view, brilliant and clear, unmodified by the by-pass circuits which are madness. Reduce the reactive bank and the optimum mind for the individual comes into view. The reactive bank was neither the drive nor the personality of the individual—these are indelible and inherent.

And another thing happens. The by-pass circuits and the reactive bank apparently stand only between the conscious banks and the analyzer. They do not stand between, for instance, the car and the sonic file in the conscious bank, the eye and the visio file, et cetera. This is a very important discovery in its own right, for it means that an aberration, for instance, about the inability to hear did not prevent all proper sounds from being filed, about the inability to see color did not prevent all color from being filed. Clear away the reactive circuit which apparently prevented the observations and the analyzer finds itself possessed of whole banks of material it never knew it had, all in proper sound and color *et al.*

For instance a man who supposes that the whole world was ugly and sordid is guided through therapy. The aberration which made the world seem ugly and sordid folds up when the norn or norns to that effect de-intensify and refile. The by-pass circuit these norns caused to be set up did not prevent a full, true recording to be made via all sensory channels. Therefore, when the analyzer is permitted to enter the files, the individual discovers that he has innumerable pleasurable experiences which, when they occurred, appeared to him to be ugly and sordid but which are now bright.

This postulates another circumstance, interesting but not vital to dianetics. The standard memory banks of the mind are evidently not filled with memories which are entities capable of willy-nilly determinism

on the individual. They are not automatically restimulated by the perception of something which suggests them in the environment. They are not hooked into circuit on a permanent basis at all. They are filed with conclusions and the analyzer may pick up the old conclusions or create new ones which change the old. In other words, *the standard bank is at the command of the analyzer and the individual; the individual is not at the command of the standard banks.*

In short there is no such thing as conditioning. Conditioning is all right for rats and dogs and cats. They run on the reactive type bank. Therefore what we refer to, ordinarily, as conditioning, is actually a norn command laid down in a specific moment. This is easily susceptible of clinical proof. The conditioning of a lifetime on the subject, say, of eating with a knife, breaks down the instant that the norn command demanding it is de-intensified.

This is not theory, but actuality: conditioning in the absence of norns on the subject does not and cannot exist. Conditioning can be removed and will stay removed. There are then two things at work: The reactive mind commands certain actions and these can be altered by the de-intensification of norns. The analyzer can hook up and arrange certain automatic responses for various mechanical situations and actions. Call the reactive mind demand a habit, call the analytical requirement a training pattern. There are habits: these can be removed. There are training patterns: these can be altered only with the consent of the analyzer, which is to say, the individual. Practically all the survival patterns which really lead to survival are laid down on the analytical level. The reactions in which people indulge which are contra-survival are laid down on the reactive level.

Conditioning, therefore, is another term which can be laid aside. The analyzer, working without impedance by norns, can lay down or take up training patterns at will. The reactive mind can lay down commands which make habits only when the exterior world implants such commands in the absence of full analytical power. Dianetics can break up habits, simply by relieving the norns which command them. Dianetics could only change a training pattern if the individual consented to it.

These discoveries were an additional proof that man was a self-determined in-

dividual. Further investigation led to another finding: that although the reactive bank was exterior determinism this determinism was a variable on the individual. In other words, the determinism laid in by pain had a variable effect. The same norn introduced into three different people might bring about three different reactions. Man is so thoroughly a self-determined organism that he has a variable reaction to all attempted determinisms. Research brought about the fact that he could exercise a power of choice over the reactive bank, even if in a limited manner. He had five ways to handle a norn: he could attack it and its counterpart in the exterior world, he could flee from it and its counterpart, he could avoid it and its counterpart, he could neglect it and its counterparts, or he could succumb to it. He was self-determined to some degree within this group of reactions. And these are the reactions to any dangerous, contra-survival problem.

These are, by the way, known as the "black panther mechanisms" in dianetic parlance. Imagine that a black panther is sitting on the stairs. There are five ways of handling the situation for a man sitting in the living room and who has a desire to go upstairs. He could attack the panther, he could flee from it, he could avoid it by going outside and coming up via the porch lattice—or entice the panther away as another method of avoidance—he could simply refuse to admit it was a black panther and attempt to go up anyway, or he could simply lie still in fear paralysis and hope that the black panther would either eat him quietly without too much pain or merely walk off in antipathy to corpses. (Fear-paralysis, denial of dangerousness.)

Now an analyzer does not handle conscious level—standard bank—memories in this fashion. The analyzer evaluates the present and future in terms of experience and education of the past plus imagination. The standard bank is used for computation, not for emotional reaction, guilt, self-revilement, et cetera. The only valid data is that data in the standard bank and in its search for success, happiness, pleasure or whatever desirable end or merely in the art of contemplation, the analyzer must have reliable information and observation. It uses memory, conclusions drawn from experience and conclusions drawn from its conclusions and computes in various ways to obtain correct answers. It avoids a false datum as a curse once it knows it is false.

And it is constantly re-evaluating the memory files to reform conclusions. The more experience it has, the better its answers. Bad experience is fine data for computation because it brings in the necessity level. But the analyzer *cannot* compute reactive data, the "unconscious memories" it cannot reach and does not even know about.

So these reactive "memories" aren't memories at all as we understand *memory*. They are something else. They were never meant to be recalled on the analytical level or to be analyzed in any way. The analyzer, trying to get around that red-tab bank sets up some circuits which would tax a Goldberg to duplicate. The analyzer is trying to reach its proper conscious level banks. If it can't, it can't compute right answers. If the analyzer keeps getting strange and seemingly sourceless material which nevertheless has pain to enforce its acceptance, that analyzer can get very wrong answers. And the structural body can go wrong. And motives go wrong. And somebody invents phrases like "it's human to err."

No, reactive "memories" aren't memories. Let's call them a good medical term, *engrams*—a lasting trace—and modify the definition by qualifying "lasting." They were certainly lasting enough pre-dianetics.

The engram is received, we can postulate, on a cellular level. The engram is cellular memory by the cells and stored in the cells. We won't go further with this because at present we want to stay out of the problems of structure. But we can prove to anyone's satisfaction that the reactive mind bank is apparently inside the cells themselves, and is not part of the human mind banks which are composed of, we suppose, nerve cells. Engrams are in any kind of cell in the whole aggregation. They do not in the least depend upon nervous structure to exist. They use and prey upon nervous structure as we know it. So we are not talking about memory when we talk about engrams. We are talking about cellular records on the order of phonograph records, smell records, organic sensation records, all very precise. And when we say reactive mind we are talking about no special part of the body but a composite, cellular level moronic method of remembering and computing. Some day somebody may cut off a chunk of brain and cry "Eureka, this is the reactive mind." Possibly. But staying with our functional computation, we

can make good time and get workable results. And so we need to know no seat for the reactive mind. And we need to know nothing about the exact structure of its banks. All we want to know is what they do.

The reactive engram comes in with pain when the analytical mind is more or less out of circuit. The engram is *not* recorded in the conscious level banks. It comes in on a cellular level, just as though the cells which compose the body, suddenly recognizing that the organism is in apparent danger of perishing, grab data in an effort to save themselves on the order of a disintegrated; every man for himself effort. But the data they get is not disordered. It is most terribly precise, most alarmingly literal. It is exact. "Bean" means "bean" in all the ways the sound of "bean" can mean "bean."

Once received, this engram can then lie dormant, inactive. It takes a remotely similar, conscious level experience to stir that engram up. This key-in moment evidently refiles the engram within the red-tab banks and gives it articulation. The words of the engram get meaning. The perceptions get hooked into the sensory organs. The engram is now in place. After this it can be very easily restimulated. The cells are now capable of back-seat driving.

By engram we mean, solely, the actual impression—like the wax indentions on a record—of the "unconscious" experience upon the body. The engram as an entire experience, we call a *norn*.

Well, these are the discoveries. Once they had been made, it was necessary to find out how they could be applied.

Man, we have postulated—and it is certainly working—is obeying the basic command, SURVIVE! This is a dynamic command. It demands action. In looking over the matter of obedience to this command numerous computations were necessary. Survive. Well, the first answer and the too obvious one is that man is surviving as a unit organism. A very thorough computation on this—about two hundred thousand words—revealed the fact that while everything in the Universe could be explained—by a few shifty turns of logic—in terms of personal survival, the thing was unwieldy and unworkable. We want things to be workable. This is engineering, not idle study. We have a definite goal. So let us see if man is all out for man.

The whole reason for the organism's

survival can be computed down into this single effort, the survival of contemporary mankind. All the reason a unit organism survives is to let all mankind survive. But that does not work well.

Now let us take a group, under which we put symbiotes. Let us postulate that the unit organism survives wholly for the group. Again, a computation can be made that explains everything down to group. Group is the only reason, says this computation. It's unwieldy but there's nothing wrong with it.

All right, let's try bringing it all down to sex. And still it can be computed perfectly, if it is a trifle unwieldy. The reason man as a unit survives is to enjoy sex and create posterity. But it requires an enormous number of heavy, cumbersome manipulations of logic that no one would like.

Investigating in the mind—going to the object one is studying and really examining it instead of windily arguing about it and quoting authority—it was discovered that an apparent balance existed only when and if *all four drives* were relatively in force. Each one computed well enough, but taken as the four-fold goal, they balance. The computing becomes very simple. Behaviour begins to look good. Using all four, we can predict.

Now comes the proof. Can we use it? Does it work? It does. Impediments lie across these drives. They have their own energy, these impediments, a reverse polarity surcharge which inhibits the drive on which they lie. This is very schematic but it computes and we can use it in therapy. An unconscious period containing physical pain and conceived or actual antagonism to survival thwarts or blocs or impedes the flow of drive force. Begin to stack up these impediments on a drive and it begins to damp markedly.

Now comes arithmetic. There's a good reason to use the figure four. There are four drives. There are four levels of physical tone. If a man's composite drive force is considered as four and his restimulated—acute or chronic, either way—reactive mind force is high enough to reduce that composite drive force below two, *the individual is insane*. In view of the fact that a norn can be currently restimulated to reduce that force below two, a condition of temporary insanity results.

A norn can consist of father beating mother during a child's anaten. When this

norn is highly restimulated, the child, now an adult, may possibly dramatize it either as the father or the mother and will carry out the full drama, *word for word, blow for blow*.

In view of the fact that when father beat mother, father was probably dramatizing one of his own norns, another factor can be found here which is highly interesting. It is contagion. *Norns are contagious*. Papa has a norn. He beats mother into anaten. She now has a norn word for word from him. The child was anaten, maybe booted aside and knocked out. The child is part of mother's perceptics for that norn. Mother dramatizes the norn on the child. The child has the norn. He dramatizes it on another child. When adulthood is attained, the norn is dramatized over and over. Contagion.

Why do societies degenerate? A race comes to a new place. New life, few restimulators—a restimulator being the environment's equivalent to the norn's perceptive content—and high necessity level which means high drive. The race thrives on the new frontier. And then begins this contagion, already present, brought in part from the old environment. And the descending spiral can be observed.

Having a norn makes one slightly anaten. Being slightly anaten one more easily receives new norns. Norns carry physical pain—psychosomatics—which reduces the general tone and bring on further anaten. And in a rapidly descending spiral, the individual decays.

These were the computations achieved

by research and investigation. Now it came to making them work. If they didn't work, we'd have to change things and get new principles. It happens that the above works.

But to start them working was a difficult thing. There was no way of knowing how many norns a patient might have. One could be cheerfully optimistic by this time. After all, there was a pretty good computation, some knowledge of the nature of the black enchantment, and it might be possible to bring about a "clear"—optimum working condition of the analyzer—in almost any patient. But the road was full of stones.

Several techniques were developed all of which brought alleviation approximating a couple thousand hours of psycho-analysis. But that wasn't good enough. They could bring about better results than hypno-analysis and bring them about much more easily. But that wasn't getting the train over the stream.

I found out about locks. A lock is a situation of mental anguish. It depends for its force on the norn to which it is appended. The lock is more or less known to the analyzer. It's a moment of severe restimulation of a norn. Psychoanalysis might be called a study of the locks. I discovered that any patient I had had thousands upon thousands of locks, enough to keep me busy forever. Removal of locks alleviates. It even knocks down chronic psychosomatic ills—at times. It produces more result than anything else so far known elsewhere, but it doesn't *cure*. Removal of locks does not give the individual all his mental powers

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back, his audio-tone, visio color, smell, taste, organic memory and imagination. And it doesn't particularly increase his I.Q. I knew that I was far from the optimum analyzer.

It was necessary to go back and back in the lives of patients looking for real norns, total anaten. Many were found. Some were found that would release when the patient was removed in time back to them and was made to go over and over them, perceptic by perceptic. But there were also norns that would not release, and they should have, if the original computation was correct. The optimum computer must analyze the data on which it operates, and, once false data have been called to its attention for questioning, the self-checking feature of the computer should automatically reject that falsity.

The fact that a norn wouldn't release worried me; either the basic idea that the brain was a perfect computer was wrong, or—hm-m-m. Before too long it was found that one had to have the first nornic instant of each perceptic before the later norn would go. That looked like order. Get the earliest pain associated with, for instance, a squeaking street car wheel and later street car wheels, even in bad norns, gave no trouble. The perfect computer wouldn't overcome the short circuit at level 256 if the same circuit was shorted at level 21, but clear the short circuit—the false data—where it first appeared, and then the computer could readily find and correct the later errors.

Then began the most persistent search possible to find the earliest norn in any patient. This was mad work. Utterly weird.

One day I found myself with a complete birth engram on my hands. At first I did not know what it was. Then there was the doctor's patter. There was the headache, the eydrops—Hello! People can remember birth when they're properly bucked into it! Aha! Birth's the earliest norn. Everybody has a birth. We'll all be clears!

Ah, if it had been true! Everybody has a birth. And believe me, birth is quite an experience, very nornic, very aberrative. Causes asthma and eyestrain and somatics galore. Birth is no picnic and the child is sometimes furious, sometimes apathetic but definitely recording, definitely a human being with a good idea of what's happening when he isn't anaten. And when the norn rises, he knows analytically all about it. (And he can dramatize it, if he's a

doctor or she can dramatize it if she's a mother. Wow, lots of dope here. Hot dope.) But birth isn't all the answer. Because people didn't become clears and stop stuttering and stop having ulcers and stop being aberrated and stop having demon circuits when birth was lifted. And sometimes birth didn't lift.

The last was enough for me. There was an axiom: find the earliest norn. Know where it wound up? *Twenty-four hours after conception!* Not all cases, fortunately. Some cases waited four days after conception before they got their first norn. The embryo anates easily; evidently *there's cellular anaten!*

No statement as drastic as this—as far beyond previous experience as this—can be accepted readily. I have no explanation of the structure involved; for the engineering answer of function, however, structural explanation is not immediately necessary. I was after one and only one thing; a technical process whereby aberrations could be eliminated, and the full potentiality of the computational ability of the mind restored. If that process involved accepting provisionally that human cells achieve awareness on the order of cellular engrams as little as a day or two after conception, then for the purposes at hand that proposition can, and must be, accepted. If it had been necessary to go back through two thousand years of genetic memory, I would still be going back to find that first norn—but fortunately there's no genetic memory, as such. But there definitely is something which the individual's mind regards as prenatal norns. Their objective reality can be debated by anyone who chooses to do so; their subjective reality is beyond debate—so much so that the process works when, only when, and *invariably when* we accept the reality of those prenatal memories. We are seeking a process that cures aberrations, not an explanation of the Universe, the function of life, or anything else. Therefore we accept as a working—because it works—postulate that *prenatal engrams are recorded as early as twenty-four hours after conception*. The objective reality has been checked so far as time and limited means permitted. And the objective reality of prenatal norns is evidently quite valid. Any psychologist can check this if he knows dianetic technique and can find some twins separated at birth. But even if he found discrepancies the bald fact remains that individuals *cannot* be re-

habilitated unless the prenatal engrams are accepted.

What happens to a child in a womb? The commonest events are accidents, illnesses—and attempted abortions!

Call the last an AA. Where do people get ulcers? In the womb usually, AA. Full registry of all perceptics down to the last syllable, material which can be fully dramatized. The largest part of the proof is that lifting the engram of such an event cures the ulcer!

How does the fetus heal up with all this damage? Ask a doctor about twenty years hence—I've got my hands full. That's structure, and right now all I want is a clear.

What's that chronic cough? That's mama's cough which compressed the baby into anaten when he was five days after conception. She said it hurt and happened all the time. So it did. What's arthritis? Fetal damage or embryo damage.

It so happens, it is now known, that a clear can control all his body fluids. In an aberee the reactive mind does a job of that. The reactive mind says things have to be such and so and that's survival. So a man grows a withered arm. That's survival. Or he has inability to see, hysterical or actual blindness. That's survival. Sure it is. Good solid sense. Had a norn about it, didn't he?

What's TB? Predisposition of the respiratory system to infection. What's this, what's that. You've got the proposition now. It works. The psychosomatic ills, the arthritis, the impotence, this and that, they go away when the norns are cleared from the bottom.

That was the essence of the derivation of the technical process. With the research stage completed, the actual application was the remaining stage, and the gathering of data on the final, all-important question. The process worked—definitely and unequivocably worked. But the full definition of a science requires that it permit accurate description of how to produce a desired result *invariably*. Would the technique work on all types of minds, on every case?

To date, over two hundred patients have been treated; of those two hundred people, two hundred cures have been obtained. Dianetics is a science because by following readily prescribed techniques, which can be specifically stated, based on definitely stated basic postulates, a specifically described result can be obtained in every

case. There may, conceivably, be exceptions to the technique now worked out, but I tried honestly to find exceptions and did not; that's why I tried so many cases, of so many different types. And some of them were really gruesome cases.

Who is an aberee? Anybody who has one or more norns. And since birth itself is a nornic experience—every human being born has at least one norn!

The whole world, according to the hypnotist, needs nothing but to be hypnotized. Just put another norn, an artificial one into a man, even if it's a manic norn—makes the subject "big" or "strong" or "powerful" plus all other perceptics contained—and he's all right. That's the basic trouble. Reduction of self-determinism. So we don't use hypnotism. Besides, it's not workable on any high percentage. If you've followed this far without realizing that we are trying to wake up an analyzer, you made the same mistake I did for many months. I tried to work this stuff with hypnosis. Well, it works, after a sloppy fashion. But how you put a man to sleep who is already three-quarters asleep—normal, near as I can discover—is a problem I wish could be solved. But fortunately it doesn't need solution.

The analyzer went to sleep with each norn. Each norn had lock norns—like it, also norns, but subsequent to it—and each chain of norns—same species, people have about fifteen or twenty chains on the average of ten or fifteen norns to the chain—has about a thousand locks. There are luckless people who have hundreds of norns. They may be sane. There are people who have twenty norns and are insane. There are people who are sane for years and suddenly get into just the right environment and get restimulated and go mad. And anybody who has a norn he has had fully restimulated has been mad—*vox populi*—for at least once, even if only for ten minutes.

When we start to treat a patient, we are treating a partially asleep analyzer—and the problem is to wake him up in the first norn and then erase—that's right *erase*, they vanish out of the reactive bank on recounting over and over with each perceptive—all subsequent norns. The locks blow out without being touched, the Doctrine of the True Datum working full blast and the analyzer refusing to tolerate what it suddenly notices to be nonsense. We wake the patient up with drugs. Benzadrine, caffeine.

Better ones will be invented. And as he recovers mental function enough to reach back a little ways into his past, we begin to alleviate. Then we finally find out the reactive mind plot—why he had to keep on being aberrated—and we blow out the demons—upsetting the circuits—and all of a sudden we are at basic basic, first norn. Then we come forward, recounting each norn over and over until it blows away and refiles as experience as opposed to command.

A clear has regression recall. Basic personality, in an aberee, isn't strong enough to go back so we used what we call the *Dianetic reverie*.

We found why narco-synthesis is so sloppy. It puts the partially restimulated norn into full restimulation, keys all of it in. The drug turns off the somatic—physical pain—so that it doesn't wholly go away. And narco has no chance of going back far enough to get basic basic and the one it reaches will pretend to erase and then will surge back in from sixty hours to sixty days.

Does any special thing hold up a case? Yes, the sympathy computation. Patient had a tough nornic background, then broke his leg and got sympathy. Thereafter he tends to go around with a simulated broken leg-arthritis, et cetera, et cetera. These are hard to crack sometimes, but they should be cracked first. They make a patient "want to be sick." Sickness has a high survival value says the reactive mind. So it tailors up a body to be sick, good and sick. Allies are usually grandmothers who protested against the child being aborted—effort already made, child listening in, not knowing the words just then but he'll know them later when he knows his first words—nurses who were very kind; doctors who bawled mama out, et cetera, et cetera. Patient usually has an enormous despair charge around the loss of an ally. That'll hold up a case.

We've completely by-passed how this ties in with modern psychology. After all, modern psychology has labels for many observed conditions. How about schizophrenia, for instance?

That's valence. An aberee has a valence for every person in every norn. He has basically three, himself, mother and father. Every norn has dramatic personnel. A valence builds up in the reactive mind and walls off a compartment, absorbing some of the analyzer—which is shut down by

restimulation. Multi-valence is common to every aberee. The valence of every aberee gets shifted day to day depending upon whom he meets. He tries to occupy the top-dog valence in every nornic dramatization. Taking this is the highest survival computation that can be made by the reactive mind; always win. Break a dramatization and you break the patient into another valence. If you break him down to being himself in that norn he will probably anaten or get sick. Keep breaking his dramatizations and he is disabled mentally.

Who will practice Dianetics? In severe cases, doctors. They are well schooled in the art of healing, they are always being bombarded by psychosomatics and mental situations. The doctor has, like the engineer, a certain necessity for results. There are several methods of alleviation which will work in a few hours, break up a chronic illness in a child, change valences, change a person's position on the time track—people get caught in various places where the command says to be caught—alter dramatization pattern and generally handle the sick aberee.

In the general case, however—the psychotic, neurotic, or merely suboptimum individual—dianetics will probably be practised by people of intelligence and good drive on their friends and families. Knowing all the axioms and mechanisms, dianetics is easy to apply to the fairly normal individual and can relieve his occulusions and colds and arthritis and other psychosomatic ills. It can be used as well to prevent aberrations from occurring and can even be applied to determine the reactions of others. Although the fundamentals and mechanisms are simple and, with some study, very easily applied, partial information is dangerous, the technique may be the stuff of which sanity is made but one is after all engaging action with the very stuff which creates madness and he should at least inform himself with a few hours' study before he experiments.

I have discussed here the evolution of Dianetics. Actually I have concentrated upon Abnormal Dianetics. There are Medical Dianetics, Dynamic Dianetics—drives and structures—Political Dianetics, Military Dianetics, Industrial Dianetics, et cetera, et cetera, and not the least, PREVENTIVE DIANETICS. On that may hang the final answer to society.

And now as an epilogue, Dianetics is

summarized in its current workable form. It does the following things, based on an ample series of cases:

1. Dianetics is an organized science of thought built on definite axioms; it apparently reveals the existence of natural laws by which behavior can uniformly be caused or predicted in the unit organism or society.

2. Dianetics offers a therapeutic technique with which we can treat any and all inorganic mental and organic psychosomatic ills, with assurance of complete cure in unselected cases. It produces a mental stability in the "cleared" patient which is far superior to the current norm. (This statement is accurate to date; it is conceded that further work may demonstrate some particular case somewhere which may not entirely respond.)

3. In Dianetics we have a method of time dislocation dissimilar to narco-synthesis or hypnosis which is called the Dianetic reverie; with it the patient is able to reach events hitherto hidden from him, erasing the physical and mental pain from his life.

4. Dianetics gives us an insight into the potential capabilities of the mind.

5. Dianetics reveals the basic nature of man and his purposes and intents, with the discovery that these are basically constructive and not evil.

6. Dianetics gives us an appreciation of the magnitude of events necessary to aberrate an individual.

7. With Dianetics we discover the nature of prenatal experience and its precise effect upon the postnatal individual.

8. Dianetics discovered the actual aberrative factors of birth.

9. Dianetics elucidates the entire problem of "unconsciousness" and demonstrates conclusively that "total unconsciousness" does not exist short of death.

10. Dianetics shows that all memories of all kinds are recorded fully and retained.

11. Dianetics demonstrates that aberrative memories lie only in areas of "unconsciousness," and conversely, that only "unconscious" memories are capable of aberrating.

12. Dianetics opens broad avenues for research and poses numerous problems for solution. One new field, for instance, is the sub-science of perceptics—the structure and function of perceiving and identifying stimuli.

13. Dianetics sets forth the non-germ

theory of disease, embracing, it has been estimated by competent physicians, the cure of some seventy percent of man's pathology.

14. Dianetics offers hope that the destruction of the function of the brain, by shock or surgery, will no longer be a necessary evil.

15. Dianetics offers a workable explanation of the various physiological effects of drugs and endocrine substances and points out numerous answers to former endocrine problems.

16. Dianetics gives a more fundamental explanation of the uses, principles and fundamentals of hypnotism and similar mental phenomena.

17. To sum up, Dianetics proposes and experimentally supports a new viewpoint on Man and his behavior. It carries with it the necessity of a new sort of mental hygiene. It indicates a new method of approach to the solution of the problems which confront governments, social agencies, industries, and, in short, man's sphere of endeavor. It suggests new fields of research. Finally it offers a glimmer of hope that Man may continue his process of evolution toward a higher organism without straying toward the danger-point of his own destruction.

This is part of the story of the search. I wrote it for you this way because you have minds with which to think. For strictly professional publications, I can, will and have, dressed this up so it is almost impossible to understand, it's so exact. A lot of you have been reading my stories for years. We know each other. And I have told you the story as is and I have given you the major results exactly as they turned out. A lot of you are fellow engineers. I thought you'd enjoy seeing the structure built.

I am truly sorry, Eric Frank Russell, that the black enchantment of Earth didn't turn out to be a sinister barrier for your sake. But it's a black enchantment all the same. The social and personal aberrations, travelling from Egypt's time and before, piling up higher and higher, being broken only by new lands and new mongrel races.

The black enchantment is slavery. Man's effort to enslave man so that man can be free. Wrong equation. That's the black enchantment. We've a magic word to break it and a science to be applied. Up there are the stars. Down in the arsenal is an atom bomb. Which one is it going to be?

THE HELPING HAND

By POUL ANDERSON

*A helping hand is a fine thing, but he who is helped,
like a hitch-hiker, must go the way of the helper!*

A MELLOW bell tone was followed by the flat voice of the roboreceptionist: "His Excellency Valka Vahino, special envoy from the League of Cundaloa to the Commonwealth of Sol."

The Earthlings rose politely as he entered. Despite the heavy gravity and dry chill air of Terrestrial conditions, he moved with the flowing grace of his species, and many of the humans were struck anew by what a handsome people his race was.

People—yes, the folk of Cundaloa were humanoid enough, mentally and physically, to justify the term. Their differences were not important, they added a certain charm, the romance of alienness, to the comforting reassurance that there was no really basic strangeness.

Ralph Dalton let his eyes sweep over the ambassador. Valka Vahino was typical of his race—humanoid mammal, biped, with a face that was very manlike, differing only in its beauty of finely chiseled features, high cheekbones, great dark eyes. A little smaller, more slender than the Earthlings, with a noiseless feline ease of movement. Long shining blue hair swept back from his high forehead to his slim shoulders, a sharp and pleasing contrast to the rich golden skin color. He was dressed in the ancient ceremonial garb of Luai on Cundaloa—shining silvery tunic, deep purple cloak from which little sparks of glittering metal swirled like fugitive stars, gold-worked boots of soft leather. One slender six-fingered hand held the elaborately carved staff of office which was all the credentials his planet had given him.

He bowed, a single rippling movement which had nothing of servility in it, and said in excellent Terrestrial which still retained some of the lilting, singing accent of his native tongue: "Peace on your houses! The Great House of Cundaloa sends greetings and many well-wishings to his brothers of Sol. His unworthy member Valka Vahino speaks for him in friendship."

Some of the Earthlings shifted stance, a little embarrassed. *It did sound awkward in translation*, thought Dalton. *But the language*

of Cundaloa was one of the most beautiful sounds in the Galaxy.

He replied with an attempt at the same grave formality. "Greetings and welcome. The Commonwealth of Sol receives the representative of the League of Cundaloa in all friendship. Ralph Dalton, Premier of the Commonwealth, speaking for the people of the Solar System."

He introduced the others then—cabinet ministers, technical advisers, military staff members. It was an important assembly. Most of the power and influence in the Solar System was gathered here.

He finished: "This is an informal preliminary conference on the economic proposals recently made to your gov . . . to the Great House of Cundaloa. It has no legal standing. But it is being televised, and I daresay the Solar Assembly will act on a basis of what is learned at these and similar hearings."

"I understand. It is a good idea." Vahino waited until the rest were seated before taking a chair.

There was a pause. Eyes kept going to the clock on the wall. Vahino had arrived punctually at the time set, but Skorrogan of Skontar was late. *Tactless*, thought Dalton, *but then the manners of the Skontarans were notoriously bad. Not at all like the gentle deference of Cundaloa, which in no way indicated weakness.*

There was aimless conversation, of the "How do you like it here?" variety. Vahino, it developed, had visited the Solar System quite a few times in the past decade. Not surprising, in view of the increasingly close economic ties between his planet and the Commonwealth. There were a great many Cundaloan students in Earthly universities, and before the war there had been a growing tourist traffic from Sol to Avaiki. It would probably revive soon—especially if the devastation were repaired and—

"Oh, yes," smiled Vahino. "It is the ambition of all young *anamai* . . . men on Cundaloa to come to Earth, if only for a visit. It is not mere flattery to say that our

admiration for you and your achievements is boundless."

"It's mutual," said Dalton. "Your culture, your art and music, your literature—all have a large following in the Solar System. Why, many men, and not just scholars, learn Luaiian simply to read the *Dvanagoa-Epai* in the original. Cundaloan singers, from concert artists to night club entertainers, get more applause than any others." He grinned. "Your young men here have some difficulty keeping our Terrestrial coeds off their necks. And your few young women here are besieged by invitations. I suppose only the fact that there cannot be issue has kept the number of marriages as small as it has been."

"But seriously," persisted Vahino, "we realize at home that your civilization sets the tone for the known Galaxy. It is not just that Solarian civilization is the most advanced technically, though that has, of course, much to do with it. You came to us, with your spaceships and atomic energy and medical science and all else—but after all, we can learn that and go on with you from there. It is, however, such acts as . . . well, as your present offer of help: To rebuild ruined worlds light-years away, pouring your own skill and treasure into our homes, when we can offer you so little in return—it is that which makes you the leading race in the Galaxy."

"We have selfish motives, as you well know," said Dalton a little uncomfortably. "Many of them. There is, of course, simple humanitarianism. We could not let races very like our own know want when the Solar System and its colonies have more wealth than they know what to do with. But our own bloody history has taught us that such programs as this economic-aid plan redound to the benefit of the initiator. When we have built up Cundaloa and Skontar, got them producing again, modernized their backward industry, taught them our science—they will be able to trade with us. And our economy is still, after all these centuries, primarily mercantile. Then, too, we will have knitted them too closely together for a repetition of the disastrous war just ended. And they will be allies for us against some of the really alien and menacing cultures in the Galaxy, planets and systems and empires against which we may one day have to stand."

"Pray the High One that that day never comes," said Vahino soberly. "We have seen enough of war."

The bell sounded again, and the robot announced in its clear inhuman tones: "His Excellency Skorrogan Valthak's son, Duke of Kraakahaym, special envoy from the Empire of Skontar to the Commonwealth of Sol."

They got up again, a little more slowly this time, and Dalton saw the expressions of dislike on several faces, expressions which smoothed into noncommittal blankness as the newcomer entered. There was no denying that the Skontarans were not very popular in the Solar System just now, and partly it was their own fault. But most of if they couldn't help.

The prevailing impression was that Skontar had been at fault in the war with Cundaloa. That was plainly mistaken. The misfortune was that the suns Skang and Avaiki, forming a system about half a light-year apart, had a third companion which humans usually called Allan after the captain of the first expedition to the system. And the planets of Allan were uninhabited.

When Terrestrial technology came to Skontar and Cundaloa, its first result had been to unify both planets—ultimately, both systems into rival states which turned desirous eyes on the green new planets of Allan. Both had had colonies there, clashes had followed, ultimately the hideous five years' war which had wasted both systems and ended in a peace negotiated with Terrestrial help. It had been simply another conflict of rival imperialisms, such as had been common enough in human history before the Great Peace and the formation of the Commonwealth. The terms of the treaty were as fair as possible, and both systems were exhausted. They would keep the peace now, especially when both were eagerly looking for Solarian help to rebuild.

Still—the average human liked the Cundaloans. It was almost a corollary that he should dislike the Skontarans, and blame them for the trouble. But even before the war, they had not been greatly admired. Their isolationism, their clinging to outmoded traditions, their harsh accent, their domineering manner, even their appearance told against them.

Dalton had had trouble persuading the Assembly to let him include Skontar in the invitation to economic aid conferences. He had finally persuaded them that it was essential—not only would the resources of Skang be a material help in restoration, particularly their minerals, but the friend-

"Two weeks ago I bought a 'Joan the Wad' and to-day I have won £232 10s. Please send two more."
B.C., Tredegar, S. Wales.

—Extract from "Everybody's Fortune Book," 1931



GUARANTEED DIPPED IN WATER
FROM THE LUCKY SAINT'S WELL

AS LUCK BRINGER.

Another writes: "Since the War my wife and I have been dogged by persistent ill-luck, and we seemed to be sinking lower and lower. One day someone sent us a Joan the Wad. We have never found out who it was, but coincidence if you like, within a week I got a much better job and my wife had some money left her. Since then we have never looked back and, needless to say, swear by 'Queen Joan.'"

AS PRIZEWINNER.

A young man wrote us only last week: "For two years I entered competitions without luck, but since getting Joan the Wad I have frequently been successful although I have not won a big prize, but I know that——, who won £2,000 in a competition, has one because I gave it to him. When he won his £2,000, he gave me £100 for myself, so you see I have cause to bless 'Queen Joan.'"

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"SUNDAY GRAPHIC" PICTURE PUZZLE.

No. 175.—"Dear Joan the Wad, I received this week cheque for £1 8s. 7d. My share of the £1,000 Prize of the 'Sunday Graphic' Picture Puzzle. I have been near winning before, but you have brought me just the extra luck I wanted."—F. T., Salisbury.

WON £153 17s., THEN £45 10s. 3d.

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WINNERS OF £6 15s. 1d.

No. 195.—"My father, myself and my sister had the pleasure of winning a Crossword Puzzle in the 'Sunday Pictorial,' which came to £6 1s. 1d., which we put down to JOAN THE WAD, and we thank her very much."—L. B., Exeter.

WON PRIZE OF £13 13s.

No. 214.—"Arrival of your charm followed the very next day by the notification that I had won a prize of £13 13s. in a Literary Competition."—F. H. R., Wellington.

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No. 216.—"Since having received JOAN THE WAD I received cheque, part share in the 'Daily Herald' Picture Contest £3 1s."—M. E., Notting Hill.

JOAN THE WAD

is the Lucky Cornish Piskey
who Sees All, Hears All, Does All.

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AS HEALER.

One Lady writes: "My sister suffered very badly for years, but since I gave her a Joan the Wad to keep near her she is much easier. Do you think this is due to Joan or the Water from the lucky Well?"

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A young girl wrote and informed me that she had had scores of boy friends, but it was not until she had visited Cornwall and taken Joan back with her that she met the boy of her dreams, and as they get better acquainted she discovered he also has Joan the Wad.

AS SPECULATOR.

A man writes: "I had some shares that for several years I couldn't give-away. They were 1/- shares and all of a sudden they went up in the market to 7/9. I happened to be staying at Joan the Wad. Pure imagination, you may say, but I thought I saw her wink approvingly. I sold out, re-invested the money at greater profit and have prospered ever since."

£30,000 WINNER.

No. 222.—"Mrs. A. . . , of Lewisham, has just won £30,000 and says she has a JOAN THE WAD, so please send one to me."—Mrs. V. Bremley.

FIRST PRIZE "NUGGETS."

No. 228.—"I have had some good luck since receiving JOAN THE WAD. I have won First Prize in ANSWERS 'Nuggets.' I had JOAN THE WAD in February, and I have been lucky ever since."—Mrs. N. W., Wolverhampton.

WON "DAILY MIRROR" HAMPER.

No. 245.—"I have just had my first win since having JOAN THE WAD, which was a 'DAILY MIRROR' HAMPER."—E. M. F., Brentwood.

WON "NUGGETS" £300.

No. 257.—"My husband is a keen Competitor in 'Bullets' and 'Nuggets.' He had not any luck until I gave him JOAN THE WAD, when the first week he secured a credit note in 'Nuggets' and last week FIRST Prize in 'Nuggets' £300."—Mrs. A. B., Salford.

CAN ANYONE BEAT THIS?

No. 286.—"Immediately after receiving my JOAN THE WAD I won a 3rd Prize in a local Derby Sweep, then I was given employment after seven months of idleness and finally had a correct forecast in Picture Puzzle 'Glasgow Sunday Mail,' which entitles me to a share of the Prize Money."—W. M., Glasgow, C.4.

All you have to do is to send a 1/- stamp (Savings Stamps accepted) and a stamped addressed envelope for the history to

ship of a potentially powerful and hitherto aloof empire could be gained.

The aid program was still no more than a proposal. The Assembly would have to make a law detailing who should be helped, and how and how much, and then the law would have to be embodied in treaties with the planets concerned. The initial informal meeting here was only the first step. But—crucial.

Dalton bowed formally as the Skontaran entered. The envoy responded by stamping the butt of his huge spear against the floor, leaning the archaic weapon against the wall, and extending his holstered blaster handle first. Dalton took it gingerly and laid it on the desk. "Greeting and welcome," he began, since Skorrogan wasn't saying anything. "The Commonwealth—"

"Thank you." The voice was a hoarse bass, somehow metallic, and strongly accented. "The Valtam of the Empire of Skontar sends greetings to the Premier of Sol, by Skorrogan Valthak's son, Duke of Kraakahaym."

He stood out in the room, seeming to fill it with his strong, forbidding presence. In spite of coming from a world of higher gravity and lower temperature, the Skontarans were a huge race, over two meters tall and so broad that they seemed stocky. They could be classed as humanoid, in that they were bipedal mammals, but there was not much resemblance beyond that. Under a wide low forehead and looming eyebrow ridges, the eyes of Skorrogan were fierce and golden, hawk's eyes. His face was blunt snouted, with a mouthful of fangs in the terrific jaws, his ears were blunt and set high on the massive skull. Short brown fur covered his muscular body to the end of the long restless tail, and a ruddy mane flared from his head and throat. In spite of the, to him, tropical temperature, he wore the furs and skins of state occasions at home, and the acrid reek of his sweat hung about him.

"You are late," said one of the ministers with thin politeness. "I trust you were not detained by any difficulties."

"No, I underestimated the time needed to get here," answered Skorrogan. "Please to excuse me." He did not sound at all sorry, but lowered his great bulk into the nearest chair and opened his portfolio. "We have business now, my sirs?"

"Well . . . I suppose so." Dalton sat down at the head of the long conference table.

"Though we are not too concerned with facts and figures at this preliminary discussion. We want simply to agree on general aims, matters of basic policy."

"Naturally, you will wish a full account of the available resources of Avaiki and Skang, as well as the Allanian colonies," said Vahino in his soft voice. "The agriculture of Cundaloa, the mines of Skorrogan, will contribute much even at this early date, and, of course, in the end there must be economic self-sufficiency."

"It is a question of education, too," said Dalton. "We will send many experts, technical advisers, teachers—"

"And, of course, some question of military resources will arise—" began the Chief of Staff.

"Skontar have own army," snapped Skorrogan. "No need of talk there yet."

"Perhaps not," agreed the Minister of Finance mildly. He took out a cigarette and lit it.

"Please, sir!" For a moment Skorrogan's voice rose to a bull roar. "No smoke. You know Skontarans allergic to tobacco—"

"Sorry!" The Minister of Finance stubbed out the cylinder. His hand shook a little and he glared at the envoy. There had been little need for concern, the air-conditioning system swept the smoke away at once. And in any case—you don't shout at a cabinet minister. Especially when you come to ask for help—

"There will be other systems involved," said Dalton hastily, trying with a sudden feeling of desperation to smooth over the unease and tension. "Not only the colonies of Sol. I imagine your two races will be expanding beyond your own triple system, and the resources made available by such colonization—"

"We will have to," said Skorrogan sourly. "After treaty rob us us of all the fourth planet— No matter. Please to excuse. Is bad enough to sit at same table with enemy without being reminded of how short time ago he was enemy."

This time the silence lasted a long while. And Dalton realized, with a sudden feeling almost of physical illness, that Skorrogan had damaged his own position beyond repair. Even if he suddenly woke up to what he was doing and tried to make amends—and who ever heard of a Skontaran noble apologizing for anything—it was too late. Too many millions of people, watching their telescreens, had seen his unpardonable arrogance. Too many important men, the

leaders of Sol, were sitting in the same room with him, looking into his contemptuous eyes and smelling the sharp stink of unhuman sweat.

There would be no aid to Skontar.

With sunset, clouds piled up behind the dark line of cliffs which lay to the east of Geyrhaym, and a thin chill wind blew down over the valley with whispers of winter. The first few snowflakes were borne on it, whirling across the deepening purplish sky, tinted pink by the last bloody light. There would be a blizzard before midnight.

The spaceship came down out of darkness and settled into her cradle. Beyond the little spaceport, the old town of Geyrhaym lay wrapped in twilight, huddling together against the wind. Firelight glowed ruddily from the old peak-roofed houses, but the winding cobble streets were like empty canyons, twisting up the hill on whose crest frowned the great castle of the old barons. The Valtam had taken it for his own use, and little Geyrhaym was now the capital of the Empire. For proud Skirnor and stately Thruvang were radioactive pits, and wild beasts howled in the burned ruins of the old palace.

Skorrogan Valthak's son shivered as he came out of the air lock and down the gangway. Skontar was a cold planet. Even for its own people, it was cold. He wrapped his heavy fur cloak more tightly about him.

They were waiting near the bottom of the gangway, the high chief of Skontar. Under an impassive exterior, Skorrogan's belly muscles tightened. There might be death waiting, in that silent sullen group of men. Surely disgrace—and he couldn't answer—

The Valtam himself stood there, his white mane blowing in the bitter wind. His golden eyes seemed luminous in the twilight, hard and fierce, a deep sullen hate smouldering behind them. His oldest son, the heir apparent Thordin, stood beside him. The last sunlight gleamed crimson on the head of his spear, it seemed to drip blood against the sky. And there were other mighty men of Skang, counts of the provinces on Skontar and the other planets, and they all stood waiting for him. Behind them was a line of imperial household guards, helmets and corselets shining in the dusk, faces in shadow but hate and contempt like a living force radiating from them.

Skorrogan strode up to the Valtam,

grounded his spear butt in salute, and inclined his head in just the proper degree. There was silence then, save for the whimpering wind. Drifting snow streamed across the field.

The Valtam spoke at last, without ceremonial greeting. It was like a deliberate slap in the face: "So you are back again."

"Yes, sire." Skorrogan tried to keep his voice stiff. It was difficult to do. He had no fear of death, but it was cruelly hard to bear this weight of failure. "As you know, I must regrettably report my mission unsuccessful."

"Indeed. We receive telecasts here," said the Valtam acidly.

"Sire, the Solarians are giving virtually unlimited aid to Cundaloa. But they refused any help at all to Skontar. No credits, no technical advisers—nothing. And we can expect little trade and almost no visitors."

"I know," said Thordin. "And you were sent to get their help."

"I tried, sire." Skorrogan kept his voice expressionless. He had to say something—but be forever damned if I'll plead! "But the Solarians have an unreasonable prejudice against us; partly related to their wholly emotional bias toward Cundaloa and partly, I suppose, due to our being unlike them in so many ways."

"So they do," said the Valtam coldly. "But it was not great, before. Surely the Mingonians, who are far less human than we, have received much good at Solarian hands. They got the same sort of help that Cundaloa will be getting, and that we might have had."

"We desire nothing but good relations with the mightiest power in the Galaxy. We might have had more than that. I know, from first-hand reports, what the temper of the Commonwealth was. They were ready to help us, had we shown any cooperativeness at all. We could have rebuilt, and gone farther than that—" His voice trailed off into the keening wind.

After a moment he went on, and the fury that quivered in his voice was like a living force: "I sent you as my special delegate to get that generously offered help. You, whom I trusted, who I thought was aware of our cruel plight—Arrrgh!" He spat. "And you spent your whole time there being insulting, arrogant, boorish. You, on whom all the eyes of Sol were turned, made yourself the perfect embodiment of all the humans think worst in us. No

wonder our request was refused! You're lucky Sol didn't declare war!"

"It may not be too late," said Thordin. "We could send another—"

"No." The Valtam lifted his head with the inbred iron pride of his race, the haughtiness of a culture where for all history face had been more important than life. "Skorrogan went as our accredited representative. If we repudiated him, apologized for—not for any overt act but for bad manners!—if we crawled before the Galaxy—no! It isn't worth that. We'll just have to do without Sol."

The snow was blowing thicker now, and the clouds were covering the sky. A few bright stars winked forth in the clear portions. But it was cold, cold.

"And what a price to pay for honor!" said Thordin wearily. "Our folk are starving—food from Sol could keep them alive. They have only rags to wear—Sol would send clothes. Our factories are devastated, are obsolete, our young men grow up in ignorance of Galactic civilization and technology—Sol would send us machines and engineers, help us rebuild. Sol would send teachers, and we could become great—Well, too late, to late." His eyes searched through the gloom, puzzled, hurt. Skorrogan had been his friend. "But why did you do it? Why did you do it?"

"I did my best," said Skorrogan stiffly. "If I was not fitted for the task, you should not have sent me."

"But you were," said the Valtam. "You were our best diplomat. Your wiliness, your understanding of extra-Skontaran psychology, your personality—all were invaluable to our foreign relations. And then, on this simple and most tremendous mission—

"No more!" His voice rose to a shout against the rising wind. "No more will I trust you. Skontar will know you failed."

"Sire—" Skorrogan's voice shook suddenly. "Sire, I have taken words from you which have meant a death duel. If you have more to say, say it. Otherwise let me go."

"I cannot strip you or your hereditary titles and holdings," said the Valtam. "But your position in the imperial government is ended, and you are no longer to come to court or to any official function. Nor do I think you will have many friends left."

"Perhaps not," said Skorrogan. "I did what I did, and even if I could explain

further I would not after these insults. But if you ask my advice for the future of Skontar—"

"I don't," said the Valtam. "You have done enough harm already."

". . . then consider three things." Skorrogan lifted his spear and pointed toward the remote glittering stars. "First, those suns out there. Second, certain new scientific and technological developments here at home—such as Dryin's work on semantics. And last—look about you. Look at the houses your fathers built, look at the clothes you wear, listen, perhaps, to the language you speak. And then come back in fifty years or so and beg my pardon!"

He swirled his cloak about him, saluted the Valtam again, and went with long steps across the field and into the town. They looked after him with incomprehension and bitterness in their eyes.

There was hunger in the town. He could almost feel it, behind the dark walls, the hunger of ragged and desperate folk crouched over their fires and wondered whether they could survive the winter. Briefly, he wondered how many would die—but he didn't dare follow the thought out.

He heard someone singing, and paused. A wandering bard, begging his way from town to town, came down the street, his tattered cloak blowing fantastically about him. He plucked his harp with thin fingers, and his voice rose in an old ballad that held all the harsh ringing music, the great iron clamor of the old tongue, the language of Naarhaym on Skontar. Mentally, for a moment of wry amusement, Skorrogan rendered a few lines into Terrestrial:

*Wildly the winging
War birds, flying
wake the winter-dead
wish for the sea-road.
Sweetheart, they summon me,
singing of flowers
fair for the faring.
Farewell, I love you.*

It didn't work. It wasn't only that the metallic rhythm and hard barking syllables were lost, the intricate rhyme and alliteration, though that was part of it—but it just didn't make sense in Terrestrial. The concepts were lacking. How could you render, well, such a word as *vorkansraavin* as *faring* and hope to get more than a mutilated fragment of meaning? Psychologies were simply too different.

And there, perhaps, lay his answer to the high chiefs. But they wouldn't know. They

couldn't. And he was alone, and winter was coming again.

Valka Vahino sat in his garden and let sunlight wash over his bare skin. It was not often, these days, that he got a chance to *aliacau*—What was that old Terrestrial word? *Siesta*? But that was wrong. A resting Cundaloan didn't sleep in the afternoon. He sat or lay outdoors, with the sun soaking into his bones or a warm rain like a benediction over him, and he let his thoughts run free. Solarians called that *daydreaming*, but it wasn't, it was, well—they had no real word for it. Psychic recreation was a clumsy term, and the Solarians never understood.

Sometimes it seemed to Vahino that he had never rested, not in an eternity of years. The grinding urgencies of wartime duty, and then his hectic journeys to Sol—and since then, in the past three years, the Great House had appointed him official liaison man at the highest level, assuming that he understood the Solarians better than anyone else in the League.

Maybe he did. He'd spent a lot of time with them, and liked them as a race and as individuals. But—by all the spirits, how they worked! How they drove themselves! As if demons were after them.

Well, there was no other way to rebuild, to reform the old obsolete methods and grasp the dazzling new wealth which only lay waiting to be created. But right now it was wonderfully soothing to lie in his garden, with the great golden flowers nodding about him and filling the summer air with their drowsy scent, with a few honey insects buzzing past and a new poem growing in his head.

The Solarians seemed to have some difficulty in understanding a whole race of poets. When even the meanest and stupidest Cundaloan could stretch out in the sun and make lyrics—well, every race has its own peculiar talents. Who could equal the gadgeteering genius which the humans possessed?

The great soaring singing lines thundered in his head. He turned them over, fashioning them, shaping every syllable and fitting the pattern together with a dawning delight. This one would be—good! It would be remembered, it would be sung a century hence, and they wouldn't forget Valka Vahino. He might even be remembered as a master versemaker—*Alia Amaui caulanriho, valana, valana, yro!*

"Pardon, sir." The flat metal voice shook in his brain, he felt the delicate fabric of

the poem tear and go swirling off into darkness and forgetfulness. For a moment there was only the pang of his loss, he realized dully that the interruption had broken a sequence which he would never quite recapture.

"Pardon, sir, but Mr. Lombard wishes to see you."

It was a sonic beam from the robo-receptionist which Lombard himself had given Vahino. The Cundaloan had felt the incongruity of installing its shining metal among the carved wood and old tapestries of his house, but he had not wanted to offend the donor—and the thing was useful.

Lombard, head of the Solarian reconstruction commission, the most important human in Avakian System just now Vahino appreciated the courtesy of the man's coming to him, rather than simply sending for him. Only—why did he have to come exactly at this moment?

"Tell Mr. Lombard I'll be there in a minute."

Vahino went in the back way and put on some clothes. Humans didn't have the completely casual attitude toward nakedness of Cundaloa. Then he went into the fore-hall. He had installed some chairs there for the benefit of Terrestrials, who didn't like to squat on a woven mat—another incongruity. Lombard got up as Vahino entered.

The human was short and stocky, with a thick bush of gray hair above a seamed face. He had worked his way up from laborer through engineer to high commissioner, and the marks of his struggle were still on him. He attacked work with what seemed almost a personal fury, and he could be harder than tool steel. But most of the time he was pleasant, he had an astonishing range of interests and knowledge, and, of course, he had done miracles for the Avakian System.

"Peace on your house, brother," said Vahino.

"How do you do," clipped the Solarian. As his host began to signal for servants, he went on hastily: "Please, none of your ritual hospitality. I appreciate it, but there just isn't time to sit and have a meal and talk cultural topics for three hours before getting down to business. I wish . . . well, you're a native here and I'm not, so I wish you'd personally pass the word around—tactfully, of course—to discontinue this sort of thing."

"But . . . they are among our oldest customs—"

"That's just it! Old—backward—delaying progress. I don't mean to be disparaging, Mr. Vahino. I wish we Solarians had some customs as charming as yours. But—not during working hours. Please."

"Well . . . I daresay you're right. It doesn't fit into the pattern of a modern industrial civilization. And that is what we are trying to build, of course." Vahino took a chair and offered his guest a cigarette. Smoking was one of Sol's characteristic vices, perhaps the most easily transmitted and certainly the most easily defensible. Vahino lit up with the enjoyment of the neophyte.

"Quite. Exactly. And that is really what I came here about, Mr. Vahino. I have no specific complaints, but there has accumulated a whole host of minor difficulties which only you Cundaloans can handle for yourselves, we Solarians can't and won't meddle in your internal affairs. But you must change some things, or we won't be able to help you at all."

Vahino had a general idea of what was coming. He'd been expecting it for some time, he thought grayly, and there was really nothing to be done about it. But he took another puff of smoke, and let it trickle slowly out, and raised his eyebrows in polite inquiry. Then he remembered that Solarians weren't used to interpreting nuances of expression as part of a language, and said aloud: "Please say what you like. I realize no offense is meant, and none will be taken."

"Good." Lombard leaned forward, nervously clasping and unclasping his big work-scarred hands. "The plain fact is that your whole culture, your whole psychology, is unfitted to modern civilization. It can be changed, but the change will have to be

drastic. You can do it—pass laws, put on propaganda campaigns, change the educational system, and so on. But it *must* be done.

"For instance, just this matter of the siesta. Right now, all through this time-zone on the planet, hardly a wheel is turning, hardly a machine is tended, hardly a man is at his work. They're all lying in the sun making poems or humming songs or just drowsing. There's a whole civilization to be built, Vahino! There are plantations, mines, factories, cities abuilding—you just can't do it on a four-hour working day."

"No. But perhaps we haven't the energy of your race. You are a hyperthyroid species, you know."

"You'll just have to learn. Work doesn't have to be backbreaking. The whole aim of mechanizing your culture is to release you from physical labor and the uncertainty of dependence on the land. And a mechanical civilization can't be cluttered with as many old beliefs and rituals and customs and traditions as yours is. There just isn't time. Life is too short. And it's too incongruous. You're still like the Skontarans, lugging their silly spears around after they've lost all practical value."

"Tradition makes life—the meaning of life—"

"The machine culture has its own tradition. You'll learn. It has its own meaning, and I think that is the meaning of the future. If you insist on clinging to outworn habits, you'll never catch up with history. Why, your currency system—"

"It's practical."

"In its own field. But how can you trade with Sol if you base your credits on silver and Sol's are an abstract actuarial quantity? You'll have to convert to our system for purpose of trade—so you might as well change over at home, too. Similarly, you'll have to learn the metric system if you expect to use our machines or make sense to our scientists. You'll have to adopt . . . oh, everything!"

"Why, your very society— No wonder you haven't exploited even the planets of your own system when every man insists on being buried at his birthplace. It's a pretty sentiment, but it's no more than that, and you'll have to get rid of it if you're going to reach the stars."

"Even your religion . . . excuse me . . . but you must realize that it has many elements which modern science has flatly disproved."

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BLOCK CAPITALS PLEASE

"I'm an agnostic," said Vahino quietly. "But the religion of Mauiroa means a lot to many people."

"If the Great House will let us bring in some missionaries, we can convert them to, say, Neopantheism. Which I, for one, think has a lot more personal comfort and certainly more scientific truth than your mythology. If your people are to have faith at all, it must not conflict with facts which experience in a modern technology will soon make self-evident."

"Perhaps. And I suppose the system of familial bonds is too complex and rigid for modern industrial society . . . yes, yes—there is more than a simple conversion of equipment involved."

"To be sure. There's a complete conversion of minds," said Lombard. And then, gently: "After all, you'll do it eventually. You were building spaceships and atomic power plants right after Allan left. I'm simply suggesting that you speed up the process a little."

"And language—"

"Well, without indulging in chauvinism I think all Cundaloans should be taught Solarian. They'll use it, at some time or other in their lives. Certainly all your scientists and technicians will have to use it, professionally. The languages of Laui and Muara and the rest are beautiful, but they just aren't suitable for scientific concepts. Why, the agglutination alone— Frankly, your philosophical books read to me like so much gibberish. Beautiful, but almost devoid of meaning. Your language lacks—precision."

"Aracles and Vranamaui were always regarded as models of crystal thought," said Vahino wearily. "And I confess to not quite grasping your Kant and Russell and even Korzybski—but then, I lack training in such lines of thought. No doubt you are right. The younger generation will certainly agree with you."

"I'll speak to the Great House and may be able to get something done now. But in any case, you won't have to wait many years. All our young men are striving to make themselves what you wish. It is the way to success."

"It is," said Lombard, and then softly: "Sometimes I wish success didn't have so high a price. But you need only look at Skontar to see how necessary it is."

"Why—they've done wonders in the last three years. After the great famine, they

got back on their feet, they're rebuilding by themselves, they've even sent explorers looking for colonies out among the stars." Vahino smiled wryly. "I don't love our late enemies, but I must admire them."

"They have courage," admitted Lombard. "But what good is courage alone? They're struggling in a tangle of obsolescence. Already the overall production of Cundaloa is three times theirs. Their interstellar colonizing is no more than a feeble gesture of a few hundred individuals. Skontar can live, but it will always be a tenth-rate power. Before long, it'll be a Cundaloan satellite state."

"And it's not that they lack resources, natural or otherwise. It's that, having virtually flung our offer of help back in our faces, they've taken themselves out of the mainstream of Galactic civilization. Why, they're even trying to develop scientific concepts and devices we knew a hundred years ago, and are getting so far off the track that I'd laugh if it weren't so pathetic. Their language, like yours, just isn't adapted to scientific thought, and they're carrying chains of rusty tradition around. I've seen some of the spaceships they've designed themselves, for instance, instead of copying Solarian models, and they're ridiculous. Half a hundred different lines of approach, trying desperately to find the main line we took long ago. Spheres, ovoids, cubes—I hear someone even thinks he can build a tetrahedral spaceship!"

"It might just barely be possible," mused Vahino. "The Riemannian geometry on which the interstellar drive itself is based would permit—"

"No, no! Earth tried that sort of thing and found it didn't work. Only a crank—and, isolated, the scientists of Skontar are becoming a race of cranks—would think so."

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"We humans were just fortunate, that's all. Even we had a long history before a culture arose with the mentality appropriate to a scientific civilization. Before that, technological progress was almost at a standstill. Afterward, we reached the stars. Other races can do it, but first they'll have to adopt the proper civilization, the proper mentality—and without our guidance, Skontar or any other planet isn't likely to evolve that mentality for many centuries to come.

"Which reminds me—" Lombard fumbled in a pocket. "I have a journal here, from one of the Skontaran philosophical societies. A certain amount of communication still does take place, you know; there's no official embargo on either side, it's just that Sol has given Skang up as a bad job. Anyway"—he fished out a magazine—"there's one of their philosophers, Dyrin, who's doing some new work on general semantics which seems to be arousing quite a furore. You read Skontaran, don't you?"

"Yes," said Vahino. "I was in military intelligence during the war. Let me see—" He leafed through the journal to the article, and began translating aloud:

"The writer's previous papers show that the principle of nonelementalism is not itself altogether a universal, but must be subject to certain psychomathematical reservations arising from consideration of the *broganar*—that's a word I don't understand—field, which couples to electronic wave-nuclei and—"

"What is that jabberwocky?" exploded Lombard.

"I don't know," said Vahino helplessly. "The Skontaran mind is as alien to me as to you."

"Gibberish," said Lombard. "With the good old Skontaran to-hell-with-you dogmatism thrown in." He threw the magazine on the little bronze brazier, and fire licked at its thin pages. "Utter nonsense, as anyone with any knowledge of general semantics, or even an atom of common sense, can see." He smiled, crookedly, a little sorrowfully, and shook his head. "A race of cranks!"

"I wish you could spare me a few hours tomorrow," said Skorrogan.

"Well—I suppose so." Thordin XI, Valtam of the Empire of Skontar, nodded his thinly-maned head. "Though next week would be a little more convenient."

"Tomorrow—please."

The note of urgency could not be denied. "All right," said Thordin. "But what will be going on?"

"I'd like to take you on a little jaunt over to Cundaloa."

"Why there, of all places? And why must it be tomorrow, of all times?"

"I'll tell you—then." Skorrogan inclined his head, still thickly maned though it was quite white now, and switched off his end of the telescreen.

Thordin smiled in some puzzlement. Skorrogan was an odd fellow in many ways. But . . . well . . . we old men have to stick together. There is a new generation, and one after that, pressing on our heels.

No doubt thirty-odd years of living in virtual ostracism had changed the old joyously confident Skorrogan. But it had, at least, not embittered him. When the slow success of Skontar had become so plain that his own failure could be forgotten, the circle of his friends had very gradually included him again. He still lived much alone, but he was no longer unwelcome wherever he went. Thordin in particular had discovered that their old friendship could be as alive as ever before, and he was often over to the Citadel of Kraakahaym, or Skorrogan to the palace. He had even ordered the old noble a position back in the High Council, but it had been refused, and another ten years—or was it twenty?—had gone by with Skorrogan fulfilling no more than his hereditary duties as duke. Until now, for the first time, something like a favor was being asked—*Yes, I'll go tomorrow. To blazes with work. Monarchs deserve holidays, too.*

Thordin got up from his chair and limped over to the broad window. The new endocrine treatments were doing wonders for his rheumatism, but their effect wasn't quite complete yet. He shivered a little as he looked at the wind-driven snow sweeping down over the valley. Winter was coming again.

The geologists said that Skontar was entering another glacial epoch. But it would never get there. In another decade or so, the climate engineers would have perfected their techniques and the glaciers would be driven back into the north. But meanwhile, it was cold and white outside, and a bitter wind hooted around the palace towers.

It would be summer in the southern hemisphere now, fields would be green and smoke would rise from freeholders' cot-

tages into a warm blue sky. Who had headed that scientific team?—yes, Aesgayr Haasting's son. His work on agronomics and genetics had made it possible for a population of independent smallholders to produce enough food for the new scientific civilization. The old freeman, the backbone of Skontar in all her history, had not died out.

Other things had changed, of course. Thordin smiled wryly as he reflected just how much the Valtamate had changed in the last fifty years. It had been Dyrin's work in general semantics, so fundamental to all the sciences, which had led to the new psychosymbolical techniques of government. Skontar was an empire in name only now. It had resolved the paradox of a libertarian state with a nonelective and efficient government. All to the good, of course, and really it was what past Skontaran history had been slowly and painfully evolving toward. But the new science had speeded up the process, compressed centuries of evolution into two brief generations. As physical and biological science had accelerated beyond belief—but it was odd that the arts, music, literature had hardly changed, that handicraft survived, that the old High Naarhaym was still spoken.

Well, so it went. Thordin turned back toward his desk. There was work to be done. Like that matter of the colony on Aesric's Planet— You couldn't expect to run several hundred thriving interstellar colonies without some trouble. But it was minor. The Empire was safe. And it was growing.

They'd come a long way from that day of despair fifty years ago, and from the famine and pestilence and desolation which followed. A long way— Thordin wondered if even he realized just how far.

He picked up the microreader and glanced over the pages. His mind training came back to him and he arished the material. He couldn't handle the new techniques as easily as those of the younger generation, trained in them from birth, but it was a wonderful help to arrish, complete the integration in his subconscious, and indolate the probabilities. He wondered how he had ever survived the old days of reasoning on a purely conscious level.

Thordin came out of the warp just outside Kraakahaym Citadel. Skorrogan had set the point of emergence there, rather than indoors, because he liked the view. It

was majestic, thought the Valtam, but dizzying—a wild swoop of gaunt gray crags and wind-riven clouds down to the far green valley below. Above him loomed the old battlements, with the black-winged kraakar which had given the place its name, hovering and cawing in the sky. The wind roared and boomed about him, driving dry white snow before it.

The guards raised their spears in salute. They were unarmed otherwise, and the vortex guns on the castle walls were corroding away. No need for weapons in the heart of an empire second only to Sol's dominions. Skorrogan stood waiting in the courtyard. Fifty years had not bent his back much, or taken the fierce golden luster from his eyes. It seemed to Thordin today, though, that the old being wore an air of taut and inwardly blazing eagerness, he seemed somehow to be looking toward the end of a journey.

Skorrogan gave conventional greeting and invited him in. "Not now, thanks," said Thordin. "I really am very busy. I'd like to start the trip at once."

The duke murmured the usual formula of polite regret, but it was plain that he could hardly wait, that he could ill have stood an hour's dawdling indoors. "Then please come," he said. "My cruiser is all set to go."

It was cradled behind the looming building, a sleek little roboship with the bewildering outline of all tethahedral craft. They entered and took their seats at the center, which, of course, looked directly out the hull.

"Now," said Thordin, "perhaps you'll tell me why you want to go to Cundaloa today?"

Skorrogan gave him a sudden look in which an old pain stirred. "Today," he said slowly, "it is exactly fifty years since I came back from Sol."

"Yes—?" Thordin was puzzled, and vaguely uncomfortable. It wasn't like the taciturn old fellow to rake up that forgotten score.

"You probably don't remember," said Skorrogan, "but if you want to vargan it from your subconscious, you'll perceive that I said to them, then, that they could come back in fifty years and beg my pardon."

"So now you want to vindicate yourself?" Thordin felt no surprise—it was typical Skontaran psychology—but he still wondered what there was to apologize for.

"I do. At that time I couldn't explai

Nobody would have listened, and in any case I was not perfectly sure myself that I had done right." Skorrogan smiled, and his thin hands set the controls. "Now I am. Time has justified me. And I will redeem what honor I lost then by showing you, today, that I didn't really fail.

"Instead, I succeeded. You see, I alienated the Solarians on purpose."

He pressed the main-drive stud, and the ship flashed through half a light-year of space. The great blue shield of Cundaloa rolled majestically before them, shining softly against a background of a million blazing stars.

Thordin sat quietly, letting the simple and tremendous statement filter through all the levels of his mind. His first emotional reaction was a vaguely surprised realization that, subconsciously, he had been expecting something like this. He hadn't ever really believed, deep down inside himself, that Skorrogan could be an incompetent.

Instead—no, not a traitor. But—what, then? What had he meant? Had he been mad, all these years or—

"You haven't been to Cundaloa much since the war, have you?" asked Skorrogan.

"No—only three times, on hurried business. It's a prosperous system. Solar help put them on their feet again."

"Prosperous . . . yes, yes, they are." For a moment, a smile tugged at the corners of Skorrogan's mouth, but it was a sad little smile, it was as if he were trying to cry but couldn't manage it. "A bustling, successful little system, with all of three colonies among the stars."

With a sudden angry gesture, he slapped the short-range controls and the ship warped down to the surface. It landed in a corner of the great spaceport at Cundaloa City, and the robots about the cradle went to work, checking it in and throwing a protective forcedome about it.

"What—now?" whispered Thordin. He felt, suddenly, dimly afraid, he knew vaguely that he wouldn't like what he was going to see.

"Just a little stroll through the capital, said Skorrogan. "With perhaps a few side trips around the planet. I wanted us to come here unofficial, incognito, because that's the only way we'll ever see the real world, the day-to-day life of living beings which is so much more important and fundamental than any number of statistics and economic charts. I want to show you what I saved

Skontar from." He smiled again, wryly. "I gave my life for my planet, Thordin. Fifty years of it, anyway—fifty years of loneliness and disgrace."

They emerged into the clamor of the great steel and concrete plain, and crossed over the gates. There was a steady flow of beings in and out, a never-ending flux, the huge restless energy of Solarian Civilization. A large proportion of the crowd was human, come to Avaiki on business or pleasure, and there were some representatives of other races. But the bulk of the throng was, naturally, native Cundaloans. Sometimes one had a little trouble telling them from the humans. After all, the two species looked much alike, and with the Cundaloans all wearing Solarian dress—

Thordin shook his head in some bewilderment at the roar of voices. "I can't understand," he shouted to Skorrogan. "I know Cundaloan, both Laui and Muara tongues, but—"

"Of course not," answered Skorrogan. "Most of them here are speaking Solarian. The native languages are dying out fast."

A plump Solarian in shrieking sports clothes was yelling at an impassive native storekeeper who stood outside his shop. "Hey, you boy, gimme him fella souvenir chop-chop—"

"Pidgin Solarian," grimaced Skorrogan. "It's on its way out, too, what with all young Cundaloans being taught the proper speech from the ground up. But tourists never learn." He scowled, and for a moment his hand shifted to his blaster.

But no—times changed. You did not wipe out someone who simply happened to be personally objectionable, not even on Skontar. Not any more.

The tourist turned, and bumped him. "Oh, so sorry," he exclaimed, urbanely enough. "I should have looked where I was going."

"Is no matter," shrugged Skorrogan.

The Solarian dropped into a struggling and heavily accented High Naarhaym: "I really must apologize, though. May I buy you a drink?"

"No matter," said Skorrogan, with a touch of grimness.

"What a planet! Backward as . . . as Pluto! I'm going on to Skontar from here. I hope to get a business contract—you know how to do business, you Skontarans!"

Skorrogan snarled and swung away, fairly dragging Thordin with him. They had gone

half a block down the motilator before the Valtam asked: "What happened to your manners? He was trying hard to be civil to us. Or do you just naturally hate humans?"

"I like most of them," said Skorrogan. "But not their tourists. Praise the Fate, we don't get many of that breed on Skontar. Their engineers and businessmen and students are all right. I'm glad that relations between Sol and Skang are close, so we can get many of that sort. But keep out the tourists!"

"Why?"

Skorrogan gestured violently at a flashing neon poster. "That's why." He translated the Solarian:

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AT THE TEMPLE OF THE HIGH ONE ADMISSION REASONABLE

"The religion of Mauiroa meant something, once," said Skorrogan quietly. "It was a noble creed, even if it did have certain unscientific elements. Those could have been changed— But it's too late now. Most of the natives are either Neopantheists or unbelievers, and they perform the old ceremonies for money. For a show."

He grimaced. "Cundaloa hasn't lost all its picturesque old buildings and folkways and music and the rest of its culture. But it's become conscious that they are picturesque, which is worse."

"I don't quite see what you're so angry about," said Thordin. "Times have changed. But they have on Skontar, too."

"Not in this way. Look around you, man! You've never been in the Solar System, but you must have seen pictures from it. Surely you realize that this is a typical Solarian city—a little backward maybe, but typical. You won't find a city in the Avakian System which isn't essentially—*human*."

"You won't find significant art, literature, music here any more—just cheap imitations of Solarian products, or else an archaic clinging to outmoded native traditions, romantic counterfeiting of the past. You won't find science that isn't essentially Solarian, you won't find machines basically different from Solarian, you'll find fewer

homes every year which can be told from human houses. The old society is dead, only a few fragments remain now. The familial bond, the very basis of native culture, is gone, and marriage relations are as casual as on Earth itself. The old feeling for the land is gone. There are hardly any tribal farms left, the young men are all coming to the cities to earn a million credits. They eat the products of Solarian-type food factories, and you can only get native cuisine in a few expensive restaurants.

"There are no more handmade pots, no more handwoven cloths. They wear what the factories put out. There are no more bards chanting the old lays and making new ones. They look at the telescreen now. There are no more philosophers of the Araclean or Vranamauan schools, there are just second-rate commentators on Aristotle versus Korzbyski or the Russell theory of knowledge—"

Skorrogan's voice trailed off. Thordin said softly, after a moment: "I see what you're getting at. Cundaloa has made itself over into the Solarian pattern."

"Just so. It was inevitable from the moment they accepted help from Sol. They'd *have* to adopt Solar science, Solar economics, ultimately the whole Solar culture. Because that would be the only pattern which would make sense to the humans who were taking the lead in reconstruction. And, since that culture was obviously successful, Cundaloa adopted it. Now it's too late. They can never go back. They don't even want to go back."

"It's happened before, you know. I've studied the history of Sol. Back before the human race even reached the other planets of its system, there were many cultures, often radically different. But ultimately one of them, the so-called Western society, became so overwhelmingly superior technologically that . . . well, no others could co-exist with it. To compete, they had to adopt the very approach of the West. And when the West helped them from their backwardness, it necessarily helped them into a Western pattern. With the best intentions in the world, the West annihilated all other ways of life."

"And you wanted to save us from that?" asked Thordin. I see your point, in a way. Yet I wonder if the sentimental value of old institutions was equal to some millions of lives lost, to a decade of sacrifice and suffering."

"It was more than sentiment!" said Skor-

rogan tensely. "Can't you see? Science is the future. To amount to anything, we *had* to become scientific. But was Solarian science the only way? Did we have to become second-rate humans to survive—or could we strike out on a new path, unhampered by the overwhelming helpfulness of a highly developed but essentially alien way of life? I thought we could. I thought we would have to.

"You see, no nonhuman race will ever make a really successful human. The basic psychologies—metabolic rates, instincts, logical patterns, *everything*—are too different. One race *can* think in terms of another's mentality, but never too well. You know how much trouble there's been in translating from one language to another. And all thought is in language, and language reflects the basic patterns of thought. The most precise, rigorous, highly thought-out philosophy and science of one species will never quite make sense to another race. Because they are making somewhat different abstractions from the same great basic reality.

"I wanted to save us from becoming Sol's spiritual dependents. Skang was backward. It *had* to change its ways. But—why change them into a wholly alien pattern? Why not, instead, force them rapidly along the natural path of evolution—our own path?"

Skorrogan shrugged. "I did," he finished quietly. "It was a tremendous gamble, but it worked. We saved our own culture. It's *ours*. Forced by necessity to become scientific on our own, we developed our own approach.

"You know the result. Dyrin's semantics was developed—Solarian scientists would have laughed it to abortion. We developed the tetrahedral ship, which human engineers said was impossible, and now we can cross the Galaxy while an old-style craft goes from Sol to Alpha Centauri. We perfected the spacewarp, the psychosymbology of our own race—not valid for any other—the new agronomic system which preserved the free-holder who is basic to our culture—*everything!* In fifty years, Cundaloa has been revolutionized, Skontar has revolutionized itself. There's a universe of difference.

"And we've therefore saved the intangibles which are our own, the art and handicrafts and essential folkways, music, language, literature, religion. The *élan* of our success is not only taking us to the stars, making us one of the great powers in the Galaxy, but it is producing a renaissance in those in-

tangibles equaling any Golden Age in history.

"And all because we remained ourselves."

He fell into silence, and Thordin said nothing for a while. They had come into a quieter side street, an old quarter where most of the buildings antedated the coming of the Solarians and many ancient-style native clothes were still to be seen. A party of human tourists was being guided through the district, and had clustered about an open pottery booth.

"Well?" said Skorrogan after a while.
"Well?"

"I don't know," Thordin rubbed his eyes, a gesture of confusion. "This is all so new to me. Maybe you're right. Maybe not. I'll have to think awhile about it."

"I've had fifty years to think about it," said Skorrogan bleakly. "I suppose you're entitled to a few minutes."

They drifted up to the booth. An old Cundaloan sat in it, among a clutter of goods, brightly painted vases and bowls and cups. Native work. A woman was haggling over one of the items.

"Look at it," said Skorrogan to Thordin. "Have you ever seen the old works? This is cheap stuff, made by the thousands for the tourist trade. The designs are corrupt, the workmanship's shoddy. But every loop and line in those designs had meaning, once."

Their eyes fell on one vase, standing beside the old hoochkeeper, and even the unimpressionable Valtam drew a shaky breath. It glowed, that vase. It seemed almost alive, in a simple shining perfection of clean lines and long smooth curves, someone had poured all his love and longing into it. Perhaps he had thought *This will live when I am gone*.

Skorrogan whistled. "That's an authentic old vase," he said. "At least a century old—a museum piece! How'd it get in this junk shop?"

The clustered humans edged a little away from the two giant Skontarans, and Skorrogan read their expressions with a wry inner amusement: *They stand in some awe of us. Sol no longer hates Skontar, it admires us. It sends its young men to learn our science and language. But who cares about Cundaloa any more?*

But the woman followed his eyes and saw
[Continued on page 61]

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THE APPRENTICE

By MILES M. ACHESON

The apprentice suffered from a no-go situation, an all-or-nothing activity. There was nothing whatever to do—until everything happened at once. Including plain, outright desertion!

TED FEND put the finishing touches to the blaster he had altered, and turned away to charge it. It would shoot an adjustable fan-shaped ray now—it could be regulated at short range to a fraction of an inch—suitable for opening the safe, suitable for fighting his way through the jungle when we want "absent without leave."

Outside the square concrete building the wind howled in the fury of a typical Venusian storm. The ring bolts clattered on the flat smooth-edged roof as the air made them vibrate and deafening crashes of thunder followed hard upon blinding flashes of lightning. Rain fell in torrents and the temperature dropped to a point where life was almost comfortable, and the air was almost cool. The whole earth seemed to shake with the force of the tempest.

He took the blaster from the charging rack and thought ruefully of his ambitions only three months ago when he had passed with honors the competitive examination into the much sought after Space Service—the Service in which it was possible to rise to as much as four thousand units a month before one was thirty-five. His present pay, as Probationary Apprentice, was a hundred.

He put the blaster down on the table.

The wind shrieked in a crescendo of sound and the whole building seemed to rock. Startled, he looked up. To his amazement, the warning light was on. Somebody had opened the outer door of the air lock.

This, of course, wasn't possible. The loneliness must be making him imagine things. He'd be seeing visions next. There was nobody near him. Nobody could enter that lock. He had been completely isolated from the world since that day three months and nine days ago, when he had been dumped by plane on the roof of the building in the heart of the wild.

He remembered his first reception in the Service. He had stood at attention in a

neat brand-new uniform in front of a desk at which sat a grim mouthed captain with frosty blue eyes and a double row of medals.

"You are now in the Service, Mr. Fend. What is required is courage, common sense, and an ability to carry out orders. You will leave in half an hour for Metrological Station 497. Your work instructions are on a notice on the wall. Your last act when you finally leave the station will be to open the combination safe in the office. Good-by, Mr. Fend."

"Yes, sir. What is the combination number?"

"Good-by, Mr. Fend."

An hour later he had been left here, entirely alone.

The warning light went out. That was a good thing. It showed he was still normal—not mad yet. Of course it would also go out if somebody was in the lock and had shut the outside door. He felt himself trembling, and the last words of the friendly airman who had dropped him here came into his mind: "Remember, whatever you go through—every other spaceman has been through the same thing."

The only way in which he could find out whether anybody was really in that lock was to go and see. He grasped the blaster and started to walk round the table. The way to lay spooks was to go after them! He stopped suddenly, prepared to resist attack. The inner door was opening.

His jaw dropped. A blue-eyed girl stood in the doorway dressed in wine hued shirt and shorts. At her throat was a touch of yellow, which matched the color of her hair.

"How did you get here?" asked Ted, almost too astonished for words.

"I crawled," said the girl. "Do you usually threaten visitors with a gun?"

Ted pulled himself together with an

effort and put down the blaster. Of course, she'd have to crawl. Nobody could walk upright in that gale.

"Sorry," he said. "You're the first visitor I've had and you startled me. Come in. Are you alone or are there other members of your party?"

The girl shut the inner door and sat down on a chair at the bare plastic table.

"I'm alone," she said. "I was out in a pleasure craft and got forced down by the storm—landed in the lee of your building. The wind caught the flier after I got out and blew it away. I'd like some coffee please."

Ted looked at her in amazement. It must have been a hair-raising experience, and to get out of it alive showed that she had considerable technical skill. Pleasure craft were single seaters, and, while strongly built, they didn't carry much fuel. They frequently had to be towed home.

He walked into the kitchen, a room exactly the same size, ten by ten by ten, as each of the others in the house and put on a kettle. Then he came back to the office-living room.

"Didn't you get metrological reports warning of the storm?" he asked.

"I only arrived a couple of days ago," said the girl. "I didn't realize that storms moved so quickly on Venus and didn't bother to look. Can you phone up for another aircraft for me? I'm Mary Loo, and I'm appearing in the show 'Gay Girls Revue' which opens in a week. Heaven only knows how I'm to pay for that broken flier."

A whistle sounded from the kitchen; one thing about these modern kettles—they were quick. He got up, added the coffee mixture from a can, and fetched out two cups and saucers, which did not match. Then he got spoons and milk and sugar.

"I'm afraid it's not easy," he said as he entered the room. "This station is absolutely cut off from everywhere—no phone, no radio, no mail, and nobody ever comes here."

The girl looked round the room with its thirty inch high shelf against every wall except where there were doors. Large notices hung above dials, "Hourly Rainfall," "Electric Atmosphere Charge," and so on.

"But surely," she said, "this is a metrological station, isn't it? Surely you must make a report every day to somebody and you could let them know?"

"These instruments are entirely automatic," said Ted, "and apparently transmit

automatically." He pointed to a notice marked "Instructions" hanging on the wall. "My sole job is to press Button A at 8:30 a.m. and 8:00 p.m. and I have a strong suspicion that Button A is a dummy. My problem is how I'm going to get out, and now you're here, you'll have to share it."

The storm stopped with a suddenness that was almost alarming and there was dead silence.

Ted finished his coffee and pushed back his chair.

"If you're feeling O.K. now, let's go out and see what's happened to your flier. Perhaps it's still usable."

He picked up the blaster and the two went into the air lock where they slipped on the standard rubberoid suits with transparent helmets. Ted checked the oxygen in each, then reached for the weapon belts which hung above, gave one to Mary and buckled the other on himself. Then he opened the outer door and walked out.

How he hated the scene! In the distance was a low range of mountains, bare of plants and purple from the color of the rocks. They fell abruptly to a narrow fringe of vegetation which ended at an arm of the sea. He saw movement there as though great animals were playing. On the near side of the arm was a thick forest which ended in a shrubby upland plain. Water dripped from everything and pools lay in each small hollow in the ground. There were no flowers. There was no grass. On the plain there was only high fern and low conifers.

Fifty yards away was the massive wire fence which surrounded the whole station to keep out wild animals. In front of him was the strong iron gate and near it was the tractor used for keeping the compound free of the ever-encroaching vegetation. Jammed half in the gate and half in the fence was the flier.

"Only a single seater," said Ted.

"Why do you want to go away?" asked Mary. "The Space Service is the best job there is!"

"Others can have the glittering prizes," said Ted. "I've had over three months solitary confinement doing nothing useful and that's enough."

He walked over to the tractor and started the engine.

"I wonder why the flier's ground grips didn't work."

"No fuel," said the girl briefly. "I used it all fighting the storm. I did not want to have to land in the jungle. I had to make this station."

"It was a good bit of navigation," said Ted. He ran the tractor up to the gate.

"I took my first class flier's certificate on Earth," said Mary, "but here—"

Ted got down and looked at the machine. There was surprisingly little damage. The landing gear was wrecked and one of the short wings and the tail had got entangled in the wires of the fence and gate.

"We'll have to open the gate to ease it free," he said. "Will you hitch this tow rope over the end of the gate? I'll pull it open so that the flier slues round and then we should be able to get her free on a straight pull on the tail from the outside. You watch the flier and shout if anything goes wrong."

The gate was pulled open without incident and Ted drove the tractor outside. Mary attached the tow rope to the tail and the flier was pulled back. Then she disconnected the rope.

"Fine," said Ted. "Now we go in, shut the gate, pull the flier forward—and there we are."

A high whinny of rage came from the edge of the forest. Ted turned his head in alarm, knowing the sound. A herd of animals about the size of elephants had pushed their way onto the plain. They were strange beasts. The head was not unlike that of a rhinoceros except that it had three blue horns, one above each eye and one above its nose which ended in a sharp yellow beak. Above the neck was a scarlet shield or ruff which raised up as the animal lowered its head to charge. The rest of the beast was green above and yellow below. The herd was charging now.

Ted leaped down to the caterpillar tread, pulled the girl into the seat, put the tractor in gear and, standing on the tractor, turned to face the thundering rush, leaving Mary at the controls.

"Get through the gate," he said. "I'll try and shut it when we're inside." He snatched out his blaster with the fan-shaped ray, fired and fired again. There were too many of them. The herd seemed to be endless. At all costs the animals had to be stopped before they could hit the tractor or reach the gate. His blaster went dead in his hand, its charge exhausted. He threw it away and snatched at the regulation one in his belt.

Mary was through the gate now. He

jumped down and pushed at its handle. For a moment, it caught on the wing of the flier. He strained fiercely and it swung free.

One of the reptiles was charging the gate, coming at it obliquely. He fired through the bars, missed and fired again, twice, rapidly. He had shot off the head of the brute in front of him but it still ran and he fired at the region of the hips to destroy the nerve center. His aim was true for he saw the animal's body lose co-ordination, but it still came on.

From beside him the girl fired at its forelegs, and the animal turned and with one last heave the beast crashed against the fence. He slammed the gate to. They were safe.

"Those things," said Ted grimly, "are comparatively peaceful animals—a kind of reptilian hippopotamus. They charge on sight; otherwise they're harmless."

The girl jumped as one of the animals charged the fence and was flung back by the strength of the wire.

"You're sure that flimsy looking thing will hold them? It looks terribly dangerous."

"I think so," said Ted. "It must be the strongest plastic alloy there is. There are rolls of it in the storeroom under the house with a massive block and tackle arrangement with hooks and rope for tightening it. But we'd better hitch up that flier of yours and pull it free or one of the beasts will knock its tail off."

He opened the door of the cabin, snapped down the release which opened the tow ring in the nose, attached the rope to the ring and started the tractor, slowly working the tail free. It pulled loose with a sharp twang of the wire. Then he drew it slowly towards the house, and the girl jumped up behind him.

"I don't like the way these beasts charge the wire, then draw back and charge again," she said.

"I think they're attracted by the greenness of the cleared land inside it," said Ted. "They've got very little brain. They may go on butting the wire all night. It should be strong enough to hold them."

"I hope so," cried the girl. "Let's get in."

"We ought to stake out the flier first in case of a blow," said Ted.

"Never mind," said the girl. "Some other time. Just now let's get in. Quick."

Ted stopped the tractor and the two went in through the air lock.

"I am glad," said Mary, "that there are no windows to this place. The beasts outside

scare me. Why won't they die when one blasts them?"

"These reptiles are like the turtles or wasps on Earth. Cut a wasp in half and the front part will go on eating quite happily. Bees are the same. So are these brutes only more so. The nervous energy seems to be all over the body. If you cut off a leg, that leg would go on living by itself."

Mary shuddered. "I can see why you want to get out. What about my flier?"

"Well, I haven't looked at it yet," said Ted, "but two things occur to me. The first is the landing gear is smashed, and I've got nothing here to make a new one, and the second is it's a single seater."

"If the landing gear was cut off, we could launch the flier from the roof like a glider. Then, with the aid of antigravity, one of us might be able to get away and send back help for the other."

"No. In the first place we have no way to give the powerful push required for launching. Also if I went away, I wouldn't want to report your being here because my doing so would immediately show that I was absent without leave, and I'd want time to get away from Venus. And if you flew out I couldn't follow because it is a criminal offense to help a spaceman to desert and nobody would do it. Nobody would help me."

The girl thought for a while.

"You were planning to go before I arrived. What was your scheme?"

"To go by tractor. There are two nozzles in this building, one for fuel and one for oxygen—for the suits. You put the tank inlets against them and they automatically get filled but—and here's the catch—the nozzles only give enough for twenty-three hours per twenty-four hour day. I've been saving up. I've got enough fuel for a fortnight, and enough oxygen for ten days."

"Do you think you can get to the nearest settlement in ten days?"

"In five, if the going was good. But it probably won't be. There are marshes and jungles which may have to be detoured—quite apart from the fact that one has to sleep. Two of us will use just exactly twice as much oxygen as one which makes the limit five days. That's much too risky. We must wait here until we can save up enough oxygen."

"By that time, I suppose, the reptiles outside will have moved on?"

"I hope so. We can't go out until they do. I designed a new form of blaster which I

used today. It's splendid against say twenty or thirty animals but as you saw it's no use against hundreds. I left it outside. I'll go and get it and at the same time look at the flier."

He rubbed the back of his neck and became suddenly very conscious of the fact that the hair there was long and untidy. Being jet black it would show. He never had succeeded in cutting the hair at the back of his neck properly. He wanted a barber.

"I'm afraid I look rather wild and woolly," he began.

Mary interrupted him.

"While you're gone, I'll get together something to eat. Don't be too long or I'll get nervous and think you've been eaten by the beasts!"

Ted walked down to the gate to where his blaster was lying. All round the fence was a ring of the reptiles, hairless, and with only the remnants of scales. Every now and again one would get up and hurl itself against the fence, but in the main they stood expectantly with their yellow beaks closed and whisps of vegetation hanging from their jaws. In the plain some of the bulls were fighting among themselves.

What a herd! There must be thousands of them, he thought, turning to walk back towards the flier. If the fence broke—

He looked over the small machine, and swore softly. It was one of those luxury affairs—everything padded and double reinforced—decorated with useless metal fittings. He might have been able to pull out enough junk to make the plane carry two instead of one. The air conditioner for example wasn't necessary. Nor was the oxygen tank. He undid the clips and pulled it out. They needed all the oxygen they could get.

The engine seemed undamaged, but he would have to look that over later. The frame seemed sound too, but the landing gear was a mess of broken wheels and shattered rods. No hope of repairing that.

His original intention had been to anchor the plane by wires attached to pegs driven into the ground, and he picked up a piece of conifer lying near and experimentally thrust it into the soil. It sank in deeply without much resistance, and he shook his head doubtfully. The ground, of course, was marshy. The pegs would have to be very long to hold the machine in a wind.

He freed the tow rope ring from the pin in the back of the tractor and laid it thoughtfully on the ground.

The bellowing at the fence grew louder.

The reptiles were now running against the wire in droves. Perhaps they were hungry. So was he. He heaved the oxygen tank onto his shoulder, grinned, and turned in to the house. It was getting dark. He would do his nightly chore of pressing Button A.

Ted woke up on the floor of the storage room feeling unwell. His head ached, and he had no energy. He got up and made his way to the shower hoping that cold water—or as near cold as could be got in that climate—would make him feel better.

Mary, who had been sleeping in his bunk, was already up and dressed, her face white.

"It's stuffy," she said. "Like an oven."

Stuffy! Ted turned to the oxygen gauge on the wall. It showed a low concentration. There was no way to alter the building supply so he turned on the tank he had got from the flier, and left it hissing gently, while he had his shower and dressed. When he came back he found he had left it on slightly too long. The concentration was a little high and he felt exhilarated. He turned off the tap and sat down to breakfast.

"According to your instruments," said Mary, indicating a lighted weather map on the wall, with a wave of her head, "there's another storm coming up this afternoon—from the north this time. We'd better make the flier fast. If it gets loose again it will probably get smashed up—and I don't want to have to pay for a new one!"

Ted leaned back in his chair. It was wonderful how she was able to make something which actually tasted like food out of that synthetic stuff. He admired the curve of her neck and the way her cheek dimpled when she smiled.

"We'll have to fasten it to the ring bolts on the roof," he said. "The ground's too soft to peg it down. We'll string a rope or wire over the roof and drag it up by means of the tractor."

He charged his blasters and went into the air lock, where he put on his suit and helmet and opened the outer door. He shut it again rapidly, and came back into the room.

"The whole compound," he said, "is full of the reptiles. They must have broken through the fence. Probably the wire got badly weakened when we twisted the flier free."

Mary looked at him gravely.

"You mean," she said, "that we can't get out to use the tractor. And there is only just enough oxygen—the house and

the suit supply—to support two people, so we can't save any. We are marooned."

"It's worse than that," he said, "the point is there is not enough oxygen for two. Unless we go now we shall die in time of suffocation. If we went by tractor, at least there is a chance. But now we can't reach it and every minute our oxygen supply diminishes."

"We could use the blaster to keep the brutes off while we got on the tractor."

"Maybe, though it's a forlorn hope. But the fuel and air tanks are in the storeroom downstairs. The tractor has got to be loaded. Even if you covered me from the roof it couldn't be done, because the blasters won't stop the brutes if they charge. The only hope is your flier."

"I don't want to be depressing," said Mary, "but how are you going to make it fly without a landing gear? It won't get off the ground without a short run, even with antigravity and as you said yourself, we can't launch it like a glider."

"I have an idea," said Ted. "The first thing is to get it on the roof. For that we need tools and a block and tackle. The last is heavy and awkward to carry. You'll have to give me a hand."

At last the work was done.

"We'll have to be quick," said Mary, pointing at the illuminated wall map. "The storm will be on us in about three hours."

Ted's gaze went from the chart to the safe below and the captain's last words rang in his mind. He took up the fan muzzled blaster. Perhaps there was something in the safe which would be of use.

He applied his weapon carefully and in four cuts the thick plastic door fell out. There was only a small red book in the safe. Nothing else. He picked it up. It was bound with imitation leather and had the title stamped in gold: "Strictly Confidential, Instructions for Employees."

His first thought was to throw it away and then he thought it might be an amusing souvenir later on and he shoved it into his pocket.

"That," he said, "is my last official act." He grinned and picked up a roll of plastic wire. "I am going absent without leave. Now, if you'll go on the roof—"

In theory, he thought, it was fairly easy. All he had to do was to nip out with one end of a roll of wire, slip it through the ring at the end of the tow rope and then run back with it to the air lock and join

the wire securely into a strong loop. During this time Mary would be protecting him by shooting from the roof. He sweated as he worked.

Jumping out into a herd of the reptiles was a hair-raising activity. He had done what he had to do, jumped back, and shut the lock door with about half a second to spare from a charging beast. It had slung itself against the door as he slid it too. But the door would not close completely because of the two strands of wire which went outside to the ring, and so would not catch.

And one of the beasts was pawing at the opening.

Ted finished sawing through the thick wire and started twisting the two strands together. He had his foot against the inside of the door to keep it closed, but that would be no use at all if the brute got its beak in the gap.

He perspired in his rubberoid suit as he worked, a pair of pliers in each hand. That would do, he thought. That twist should be strong enough to hold the weight. Why hadn't Mary shot the beast at the door? The next part of the job was going to be dangerous with that brute there. He'd have to move fast.

He pocketed his tools, lifted the wire above his head and eased the door open a crack to push the joined wire through. What he had feared happened. A great horny beak pushed the door wide, and for a split second he gazed into a gaping reptilian mouth. He fired instinctively and threw the wire out. He fired again, realizing what had happened. It was the case of the front end of the wasp. Mary had done her best to protect him, but she had not been able to destroy the fore part of the beast for fear of cutting the wire he had taken so much risk to fix. However, he had killed the front end now and it lay twitching in the opening of the door. He had to throw it out. Unless the outer door was closed the inner door would not open and he could not get back into the house.

He could not throw it out. No man can lift the head of a beast the size of an elephant. As he looked, he saw other brutes rushing down on him, and although some fell from Mary's shots, others kept charging on. There was no time to move the carcass out of the way and he was shut off from the inside of the house.

He swung round, blasted the catch of the inside door, pushed it open, leaped through and pulled it to, then he rushed to the air lock which led to the roof. That action had cut their possible supplies of oxygen by half. The house oxygen would simply leak out into the atmosphere. From now on, everything had to be done at top speed.

"Our next move," he said, "is simple. We catch the loop in a hook attached to a rope which goes through the pulley. Then 'Heave ho!' and straight up she goes."

"Will she go straight up?" asked Mary.

"As a matter of fact she probably won't," said Ted. "She may twist a bit. But so long as we get her the right way up it'll be O.K."

"Why don't the animals trample on the machines," asked Mary. "A rogue elephant on Earth would."

"They don't associate them with us," said Ted, fishing for the wire with the hook. "Their intelligence is too low. Ready? I've got it."

Catching the loop was easy, and so was hauling the flier up until she got about level with the edge of the roof when they had to secure her with wire and refix the rope behind the wings. Then they pulled her up.

With the aid of a blaster, Ted cut out the seat and ripped out all unnecessary fittings—the inside walls, the ornamental work, the broken landing gear, everything except the bare necessities required to navigate the craft.

Mary picked up some of the pieces experimentally.

"You say you weigh a hundred and eighty pounds?" she said. "There doesn't seem to be anything like a hundred and eighty here."

"No," said Ted. "I reckon she's made to carry a person of two hundred pounds or more. You weigh about a hundred and thirty, so all we have to take out is a hundred and ten." He checked over the wings and body, filled the fuel tank and tested the engine.

"Fair enough," said Mary. "We have enough oxygen in our suits for a day but what about some more in case of accidents? Also food and water would come in handy."

There was a resounding crash from the house.

Ted walked to the edge overlooking the air lock. "There's no chance of that," he

said. "Look! The beasts have broken down the inner door and are in the house. From the noise, they're smashing up all the instruments. We can't go back."

"Then what do we do now?"

"We head the flier into the storm which is due soon. We attach the tow ring by a wire to a bolt on the roof and with the aid of the antigravities fly her like a kite until she gets clear. We then drop the wire and off we go."

"Splendid," said Mary, "and if the wind drops in the middle?"

"We break our necks," said Ted cheerfully.

"And if we fail to get clear, we get trampled by reptiles." Mary shivered a little. "There's no other chance. Let's get her ready."

"There's nothing more to be done except wait," said Ted after a short interval. "It won't be long."

"Oh yes there is," said Mary. "I've been dying to ask you what's in that book you pocketed marked 'Strictly Confidential.' We might fill in the time by looking at it."

Ted pulled the book from his pocket, opened the first page, glanced at it in amazement, and laughed. "Listen," he said.

"Instructions to Probationary Apprentices about to desert their post: Report to Headquarters to be confirmed in full rank.

"The object of this period is to find out whether you can live alone; whether you have enough common sense to see that it is no use staying where you can do no good; whether you can obey orders. Your getting possession of this book shows that you are suitable for our service. Your next test is getting back through the jungle. Many succeeded but some have failed. Good luck to you!"

Ted put down the book and jumped to his feet delightedly.

"I'm so glad," said Mary. "Somehow it's much better going away as a member of the Service rather than as a deserter—isn't it?"

The wind started to rise and the two made a dash for the flier.

"I doubt I'll have the strength to manage the controls," said Mary. "Can you help? Have you a first-class flier's certificate?"

"With honors," said Ted briefly. "One's necessary before you can join the Service. I'll fly the machine."

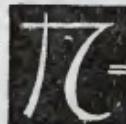
The gale lifted them high and the wire

thrummed with the force of the wind. There was a moment of awful movement as Ted released the tow ring and then they were riding the storm.

"Now to land her without crashing," said Mary.

"I shall do that safely on Headquarters landing field," said Ted grinning, "but it will be a most almighty thump!"

It was.



THE END.

THE HELPING HAND

(Continued from page 53)

the vase glowing beside the old vendor. She turned back to him: "How much?"

"No sell," said the Cundaloan. His voice was a dusty whisper, and he hugged his shabby mantle closer about him.

"You sell." She gave him a bright artificial smile. "I give you much money. I give you ten credits."

"No sell."

"I give you hundred credits. Sell!"

"This mine. Famby have it since old days. No sell."

"Five hundred credits!" She waved the money before him.

He clutched the vase to his thin chest and looked up with dark liquid eyes in which the easy tears of the old were starting forth. "No sell. Go 'way. No sell *amauai*."

"Come on," mumbled Thordin. He grabbed Skorrogan's arm and pulled him away. "Let's go. Let's get back to Skontar."

"So soon?"

"Yes. Yes. You were right, Skorrogan. You were right, and I am going to make public apology, and you are the greatest savior of history. But let's get home!"

They hurried down the street. Thordin was trying hard to forget the old Cundaloan's eyes. But he wondered if he ever would.

INTELLECTUAL HOBSON — JOBSONISM

THERE'S a phenomenon in linguistics which students of the field call "hobson-jobsonism." It's not, as might at first be supposed, named after two eminent doctors "Hobson" and "Jobson," but because of an incident in the British occupation of India.

The British troops who went into India did not understand Hindustani, and the British have long been known for their tendency to expect the other fellow to learn their language, rather than bothering with his. To the British troops, Hindustani was an unfamiliar collection of meaningless sounds—but they heard a lot of it around them. One phrase in particular was very common; the British found it sounded, to English-trained ears, like "hobson-jobson," and so referred to it. There's a natural human tendency to transpose the unfamiliar into familiar terms.

The British troops were by no means the first or the last to do so; it's a general human characteristic, indulged in by all peoples in all times. As a matter of fact, the word "barbarian" derives from the fact that the more civilized Greeks, scorning their less cultured neighbors, thought their language sounded like a vague repetition of the sound *bar-bar-bar-bar*.

Then there is the French terms for the bowsprit of a ship; it's called "beautiful meadow" in French. The English invented the gadget, and named it; the French sailing men found the English name sounded like the French words meaning "beautiful meadow"—and proceeded to install "beautiful meadows" on their own ships.

Now hobson-jobsonism is interesting but not very disturbing in the field of linguistics and phonetics; unfortunately the natural human tendency that results in linguistic hobson-jobsonism is a basic tendency in man—and it does cause trouble. It is the tendency to force the new and unfamiliar into the old and familiar form, however inappropriate that old form may be. The French were willing to call a bowsprit a "beautiful meadow," however outrageous the words, conceptually interpreted, were, because that fitted an old and familiar phonetic concept.

The trouble is, there is a very marked tendency in man to do precisely the same thing at the intellectual level—intellectual hobson-jobsonism that leads a man to try to force, by main strength and intellectual awkwardness, a new concept into the handiest old and familiar pattern. The realm of nuclear physics, in particular, is apt to be rife with hobson-jobsonism; the electron-nucleus system is thought of like a miniature solar system although the idea is sheerest hobson-jobsonism. An electron in an atom is *not* a small, hard, charged particle; it does *not* rotate about the nucleus in an orbit in the sense that a planet circles a sun. It is closer to the truth to say that an electron *is* an orbit-shell. Here the mind is attempting to deal with a microcosmic phenomenon that has no possible remotely similar microcosmic analogue.

This intellectual hobson-jobsonism is an item of very major importance to the world; it is one of the major stumbling blocks in

the immeasurably important business of transferring knowledge from one human mind to another.

The first great block is language, of course.

Second, within any existent language there is the difficulty of definition of terms. A word does *not* mean what the speaker thinks it means, but what the *listener* thinks it means—so far as transferring the desired information is concerned. The man who is trying to get the information over must take that into account; it is useless for A to describe the material in his own terms; B will understand only in B's terms—and A has to realize that. The difficulty of that little job is slightly appalling in itself. Without going to the dictionary, make an off-hand guess on the number of definitions you'll find for the common word "play," for instance and then check on actual—and I assure you surprising!—number of meanings. When you use the word, are you sure it means—to your listener, of course—what you think it does?

Finally, when you have your words all properly defined and get mutual understanding of the concepts you are explaining—then your listener must fit those concepts into the pattern of what he already knows. And intellectual hobson-jobsonism steps in.

I have, recently, become most acutely aware of this latter phenomenon in connection with dianetics. I've tried to explain it to a good many people. Generally, the layman, once the word-values are mutually understood, can accept the new concepts rapidly and easily. He has no extensive previous familiar pattern on which to hobson-jobson the concepts. But the man who has previously worked in the field of the mind immediately hobson-jobson's the new ideas, however inappropriately, into his previous pattern of thought.

I have, for instance, explained dianetics to a hypnotherapist, who said, "Oh, yes—I understand. That's the type of work I've

been doing. Hypnosis—that's what I've been using. I see you use a little different technique than I do, but I always knew hypnosis was the answer—"

The fact that dianetics does *not* use hypnotic therapy, that dianetic therapy is precisely exactly the opposite of hypnosis, does not fit his previous set of concepts; because hypnosis was used as a research tool in formulating dianetics, he hobson-jobsons dianetics entirely into his previous concepts. Hypnotic therapy attempts to plant commands; in exact reverse, the whole principle of dianetic therapy is to *remove* commands, to break the hypnoticlike command of unconscious experiences.

Similarly, the psychoanalyst, told about dianetics, nods and tends to say, "Yes—that's the basic idea of Freudian psychoanalysis. You remember Freud and Breuer started using hypnotic techniques, and dropped it as unsatisfactory. You seem to have a somewhat improved technique. But your methods are along. The patient must learn to face just what we've been using right, the reality of his memories and understand the symbolic values of them—"

Hobson-jobson at work. Freud started trying to use hypnotherapy; it doesn't work. Hypnoanalysis still doesn't work. But the psychoanalyst tends to miss—because he has been trained to an exactly opposite viewpoint—the critical point in dianetics. A neurotic patient's behavior is *not* symbolic; it is exactly, literally carrying out a precise and specific command. And it's amazing how far off the track you can go if you insist that a literal statement is symbolic.

More important; the next time you are trying to explain your specialty to someone in another line, look for that intellectual hobson-jobsonism. You'll probably find it. And knowing it's there, you can quickly find out why your explanation isn't making sense to the other fellow!

It's Almost UNCANNY



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